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INFINITE RICHES IN A LITTLE ROOM.

—Christopher Marlowe.

✓ NEW AMERICANIZED
ENCYCLOPÆDIA BRITANNICA

REVISED AND AMENDED.

A DICTIONARY OF ARTS, SCIENCES AND LITERATURE

TO WHICH IS ADDED

BIOGRAPHIES OF LIVING SUBJECTS

96 Colored Maps and Numerous Illustrations.



EDITED BY

W. H. DEPUY, D.D., LL.D.

And a Corps of Eminent Writers.

VOL. III.—BUR—CON.

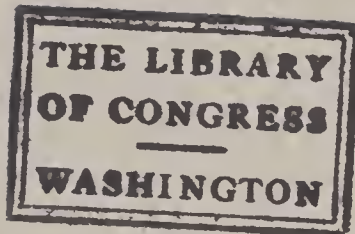


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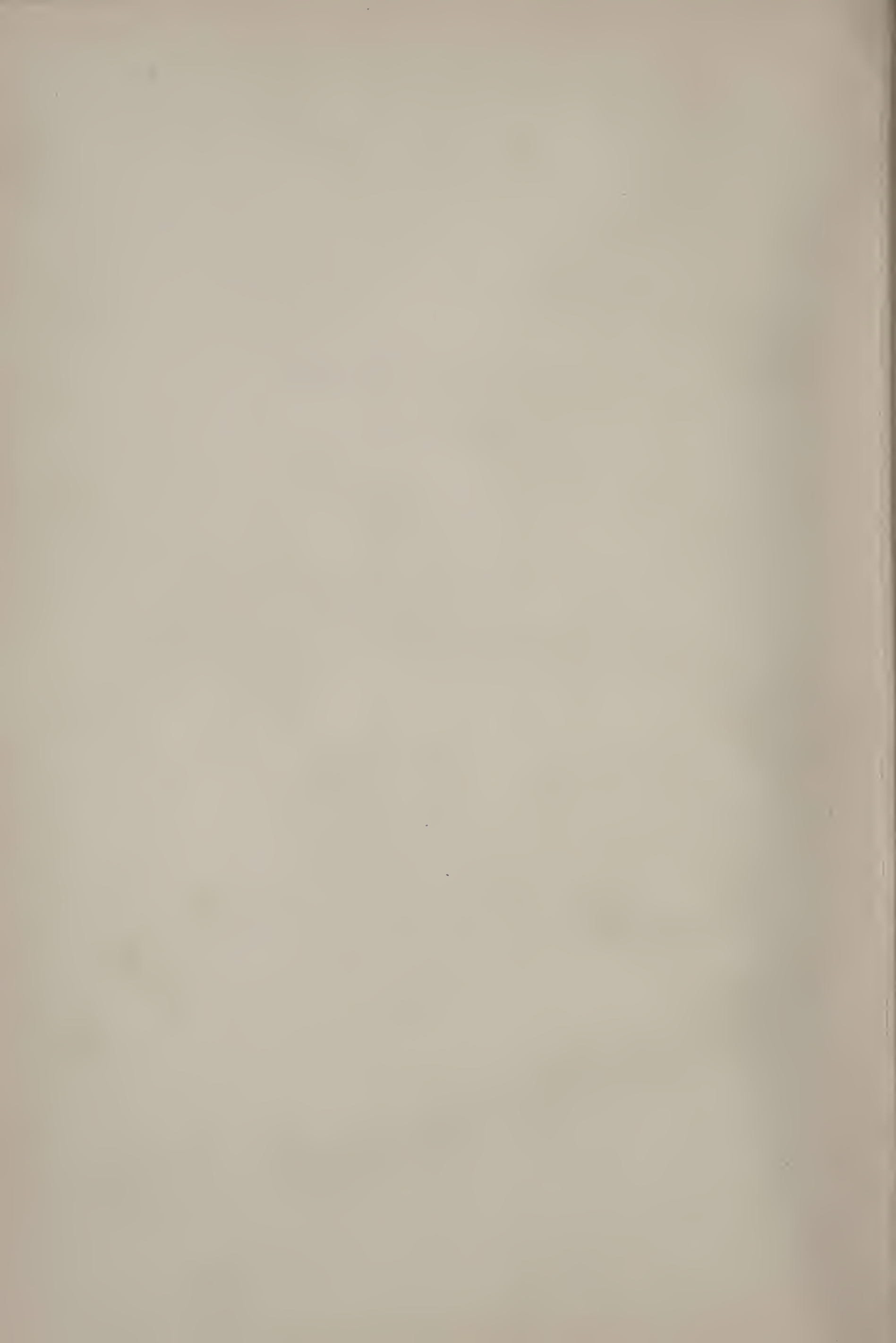
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NEW AMERICANIZED ENCYCLOPÆDIA BRITANNICA.

VOLUME III.

B U R

BURGUNDIO, an illustrious jurist of the university of Pisa, died at a very advanced age in 1194. He was a distinguished Greek scholar.

BURGUNDY has at various periods been the name of different political and geographical areas. The Burgundians seem to have been a people of German race, who are first found settled between the Oder and the Vistula. At an early period they came into conflict with the Al-*emanni*, whom they defeated; and in the beginning of the 5th century they crossed into Roman Gaul under their leader Gundicar. The Romans not only permitted them to settle within the limits of the empire, but caused the inhabitants of the district to yield up to them one-half of their houses, two-thirds of the cultivated land, and a third of their slaves. The new-comers thus founded in the country between the Aar and the Rhone, what is usually known as the first kingdom of Burgundy, which lasted till 534, when it was incorporated in the Frankish empire.

In 1361 the duchy was seized by king John, and in 1363 presented by him to his son Philip the Bold as a reward for his bravery at the battle of Poitiers. Thus commenced that famous line of dukes which played so great a part in the history of France during the 14th and 15th centuries, and by the splendor of its achievements and the magnificence of its patronage rivalled the greatest dynasties of the time. In 1512 Maximilian incorporated the territory with the German empire under the title of the circle of Burgundy. It was gradually diminished by the encroachments of France, and by the liberation of the Netherlands, so that at the Revolution it only consisted of Brabant, Limburg, Luxembourg, and parts of Flanders, Hainault, Namur, and Guelders.

BURGUNDY WINES rank among the finest in the world. The finest *white* Burgundy is Mont *Rachet*; Chablis is a *white* wine of Lower Burgundy. Beaune is the center of the trade. The most celebrated *red* wines of Burgundy are Romanee-Conti, Chambertin, Richebourg, Clos-Vougeot.

BURHANPUR, a town of British India in the Nimár district of the Central provinces, situated on the north bank of the River Tapti. It was founded in

1400 A. D. by a Mahommedan prince of the Farukhi dynasty of Khandesh, whose successors held it for 200 years, when the Farukhi kingdom was annexed to the empire of the Akbar. Burhánpur is celebrated for its muslins, flowered silks, and brocades, which, according to Tavernier, who visited it in 1668, were exported in great quantities to Persia, Egypt, Turkey, Russia, and Poland. The gold and silver wires used in the manufacture of these fabrics are drawn with considerable care and skill; and in order to secure the purity of the metals employed for their composition, the wire-drawing under the native rule was done under Government inspection. The town of Burhánpur and its manufactures have long been on the decline.

BURIAL AND BURIAL RITES. See **FUNERAL**.

BURIATS, a Mongolian race, who dwell in the vicinity of the Baikal Lake, for the most part in the government of Irkutsk and Trans-Baikal territory.

BURIDAN, JEAN, a celebrated philosopher, who flourished in the fourteenth century, was born at Bethune in Artois, but in what year is not known. He long held the office of professor of philosophy in the University of Paris. He was alive in 1358, but the year of his death has not been recorded.

BURKE, EDMUND, one of the greatest names in the history of political literature. No one that ever lived used the general ideas of the thinker more successfully to judge the particular problems of the statesman. No one has ever come so close to the details of practical politics, and at the same time remembered that these can only be understood and only dealt with by the aid of the broad conceptions of political philosophy. And what is more than all for perpetuity of fame, he was one of the great masters of the high and difficult art of elaborate composition.

A certain doubtfulness hangs over the circumstances of Burke's life previous to the opening of his public career. The very date of his birth is variously stated. The most probable opinion is that he was born at Dublin on January 12, 1729. Of his family we know little more than that his father was a Protestant attorney, practicing in Dublin, and that his mother was

a Catholic, a member of the family of Nagle. He had at least one sister, from whom are descended the only existing representatives of Burke's family; and he had at least two brothers, Garret Burke and Richard Burke, the one older and the other younger than Edmund. In 1741 the three brothers were sent to school at Ballitore in the county of Kildare. This school was kept by Abraham Shackleton, an Englishman, and a member of the Society of Friends. He appears to have been an excellent teacher and a good and pious man.

In 1743 Burke became a student in that famous institution at Dublin which numbers among its sons so many of the shining names of the 18th century in literature, politics, and law. Oliver Goldsmith was at Trinity College at the same time as Burke. But the serious pupil of Abraham Shackleton would not be likely to see much of the wild and squalid sizar. Burke, like Goldsmith, achieved no academic distinction. His knowledge of Greek and Latin was never thorough, nor had he any turn for critical niceties. He could quote Homer and Pindar, and he had read Aristotle. Like others who have gone through the conventional course of instruction, he kept a place in his memory for the various charms of Virgil and Horace, of Tacitus and Ovid; but the master whose page by night and by day he turned with devout hand, was the copious, energetic, flexible, diversified, and brilliant genius of the declamations for Archias the poet and for Milo, against Catiline and against Antony, the author of the disputations at Tusculum and the orations against Verres. Cicero was ever to him the mightiest of the ancient names. In our own literature Milton seems to have been more familiar to him than Shakespeare, and Spenser was perhaps more of a favorite with him than either.

He left Trinity in 1748, with no great stock of well-ordered knowledge.

Burke, after taking his degree at Dublin, went in the year 1750 to London to keep terms at the Temple. The ten years that followed were passed in obscure industry. In that respect at least unlike Cicero, Burke was always extremely reserved about his private affairs. All that we know of Burke exhibits him as inspired by a resolute pride, a certain stateliness and imperious elevation of mind. "I was not swaddled and rocked and dawdled into a legislator," wrote Burke when very near the end of his days.

All sorts of whispers have been circulated by idle or malicious gossip about Burke's first manhood. He is said to have been one of the too numerous lovers of his fascinating countrywoman, Margaret Woffington. It is hinted that he made a mysterious visit to the American colonies. He was for years accused of having gone over to the Church of Rome, and afterwards recanting. There is not a tittle of positive evidence for these or any of the other statements to Burke's discredit. Like a great many other youths with an eminent destiny before them, Burke conceived a strong distaste for the profession of the law. His father, who was an attorney of substance, had a distaste still stronger for so vagrant a profession as letters were in that day. He withdrew the annual allowance, and Burke was launched on the slippery career of the literary and political adventurer. In fairer words, he set to work to win for himself by indefatigable industry and capability in the public interest that position of power or pre-eminence which his detractors acquired either by accident of birth and connections, or else by the vile arts of political intrigue. He began at the bottom of the ladder, mixing with the Bohemian society that haunted the Temple, practicing oratory in the free and easy debating societies of Covent Garden and the Strand, and writing for the booksellers.

In 1756 he made his first mark by a satire upon Boling-

broke, entitled *A Vindication of Natural Society*. It purported to be a posthumous work from the pen of Bolingbroke, and to present a view of the miseries and evils arising to mankind from every species of artificial society. The imitation of the fine style of that magnificent writer but bad patriot is admirable.

In the same year (1756) appeared the *Philosophical Inquiry into the Origin of our Ideas on the Sublime and Beautiful*, a crude and narrow performance in many respects, yet marked by an independent use of the writer's mind, and not without fertile suggestion.

By 1756 the cast of Burke's opinions was decisively fixed, and they underwent no radical change. He began a series of *Hints on the Drama*. He wrote a portion of an *Abridgment of the History of England*, and brought it down as far as the reign of John. Burke's early interest in America was shown by an *Account of the European Settlements* on that continent. Such works were evidently a sign that his mind was turning away from the abstract speculation to the great political and economic fields, and to the more visible conditions of social stability and the growth of nations. This interest in the concrete phenomena of society inspired him with the idea of the *Annual Register* (1759), which he designed to present a broad grouping of the chief movements of each year. His wife was the daughter of a Dr. Nugent, a physician at Bath. She is always spoken of by his friends as a mild, reasonable, and obliging person, whose amiability and gentle sense did much to soothe the too nervous and excitable temperament of her husband. She had been brought up, there is good reason to believe, as a Catholic, and she was probably a member of that communion at the time of her marriage. Dr. Nugent eventually took up his residence with his son-in-law in London, and became a popular member of that famous group of men of letters and artists, whom Boswell has made so familiar and so dear to all the later generations. Lord Charlemont introduced Burke to William Gerard Hamilton (1759), now only remembered by a nickname derived from the circumstance of his having made a single brilliant speech in the House of Commons, which was followed by years of almost unbroken silence. Hamilton was by no means devoid of sense and acuteness, but in character he was one of the most despicable men then alive. There is not a word too many nor too strong in the description of him by one of Burke's friends, as "a sullen, vain, proud, selfish, canker-hearted envious reptile." The reptile's connection, however, was for a time of considerable use to Burke. When he was made Irish Secretary, Burke accompanied him to Dublin.

The penal laws against the Catholics, the iniquitous restrictions on Irish trade and industry, the selfish factionousness of the Parliament, the jobbery and corruption of administration, the absenteeism of the landlords, and all the other too familiar elements of that mischievous and fatal system, were then in full force. As was shown afterwards, they made an impression upon Burke that was never effaced. So much iniquity and so much disorder may well have struck deep on one whose two chief political sentiments were a passion for order and a passion for justice.

When Hamilton retired from his post, Burke accompanied him back to London, with a pension of £300 a year on the Irish Establishment. This modest allowance he hardly enjoyed for more than a single year. His patron having discovered the value of so laborious and powerful a subaltern, wished to bind Burke permanently to his service. Burke declined to sell himself into final bondage of this kind. When Hamilton continued to press his odious pretensions they quarrelled (1765), and Burke threw up his pension.

The accession of George III. to the throne in 1760 had been followed by the disgrace of Pitt, the dismissal of Newcastle, and the rise of Bute. These events marked the resolution of the court to change the political system which had been created by the Revolution of 1688. That system placed the government of the country in the hands of a territorial oligarchy, composed of a few families of large possessions, fairly enlightened principles, and shrewd political sense. It had been preserved by the existence of a Pretender. The two first kings of the House of Hanover could only keep the crown on their own heads by conciliating the Revolution families and accepting Revolution principles.

Along with the change in system went high-handed and absolutist tendencies in policy. The first stage of the new experiment was very short. Bute, in a panic at the storm of unpopularity that menaced him, resigned in 1763. George Grenville and the less enlightened section of the Whigs took his place. They proceeded to tax the American colonists, to interpose vexatiously against their trade, to threaten the liberty of the subject at home by general warrants, and to stifle the liberty of public discussion by prosecutions of the press. Their arbitrary methods disgusted the nation, and the personal arrogance of the ministers at last disgusted the king. The system received a temporary check. Grenville fell, and the king was forced to deliver himself into the hands of the orthodox section of the Whigs. The Marquis of Rockingham (July 10, 1765) became prime minister, and he was induced to make Burke his private secretary. Before Burke had begun his duties, an incident occurred which illustrates the character of the two men. The old duke of Newcastle, probably desiring a post for some nominee of his own, conveyed to the ear of the new minister various absurd rumors prejudicial to Burke,—that he was an Irish papist, that his real name was O'Bourke, that he had been a Jesuit, that he was an emissary from St. Omer's. Lord Rockingham repeated these tales to Burke, who of course denied them with indignation. His chief declared himself satisfied, but Burke, from a feeling that the indispensable confidence between them was impaired, at once expressed a strong desire to resign his post. Lord Rockingham prevailed upon him to reconsider his resolve, and from that day until Lord Rockingham's death in 1782, their relations were those of the closest friendship and confidence.

The first Rockingham administration only lasted a year and a few days, ending in July 1766. The uprightness and good sense of its leaders did not compensate for the weakness of their political connections. They were unable to stand against the coldness of the king, against the hostility of the powerful and selfish faction of Bedford Whigs, and, above all, against the towering predominance of William Pitt. That Pitt did not join them is one of the many fatal miscarriages of history, as it is one of the many serious reproaches to be made against that extraordinary man's checked and uneven course. An alliance between Pitt and the Rockingham party was the surest guarantee of a wise and liberal policy towards the colonies. He went further than they did, in holding, like Lord Camden, the doctrine that taxation went with representation, and that therefore Parliament had no right to tax the unrepresented colonists.

The ministerial policy towards the colonies was defended by Burke with splendid and unanswerable eloquence. He had been returned to the House of Commons for the pocket borough of Wendover, and his first speech (January 27, 1766) was felt to be the rising

of a new light. For the space of a quarter of a century, from this time down to 1790, Burke was one of the chief guides and inspirers of a revived Whig party. The "age of small factions" was now succeeded by an age of great principles, and selfish ties of mere families and persons were transformed into a union resting on common conviction and patriotic aims. It was Burke who did more than any one else to give to the Opposition, under the first half of the reign of George III., this stamp of elevation and grandeur. Before leaving office the Rockingham Government repealed the Stamp Act; confirmed the personal liberty of the subject by forcing on the House of Commons one resolution against general warrants, and another against the seizure of papers; and relieved private houses from the intrusion of officers of excise, by repealing the cider tax. Nothing so good was done in an English parliament for nearly twenty years to come.

In the midst of intense political preoccupations, Burke always found time to keep up his intimacy with the brilliant group of his earlier friends. He was one of the commanding figures of the Club at the Turk's Head, with Reynolds and Garrick, Goldsmith and Johnson. The old sage who held that the first Whig was the Devil, was yet compelled to forgive Burke's politics for the sake of his magnificent gifts. "I would not talk to him of the Rockingham party," he used to say, "but I love his knowledge, his genius, his diffusion and affluence of conversation." And everybody knows Johnson's vivid account of him: "Burke, Sir, is such a man that if you met him for the first time in the street, where you were stopped by a drove of oxen, and you and he stepped aside to take shelter but for five minutes, he'd talk to you in such a manner that when you parted you would say, 'This is an extraordinary man.'"

With all his hatred for the book-man in politics, Burke owed much of his own distinction to that generous richness and breadth of judgment which had been ripened in him by literature and his practice in it. Like some other men in our history, he showed that books are a better preparation for statesmanship than early training in the subordinate posts and among the permanent officials of a public department.

In 1774 he received the great distinction of being chosen as one of its representatives by Bristol, then the second town in the kingdom.

In the events which ended in the emancipation of the American colonies from the monarchy, Burke's political genius shone with an effulgence that was worthy of the great affairs over which it shed so magnificent an illumination. His speeches are almost the one monument of the struggle on which a lover of English greatness can look back with pride and a sense of worthiness. Burke's attitude in these high transactions is really more impressive than Chatham's, because he was far less theatrical than Chatham; and while he was no less nobly passionate for freedom and justice, in his passion was fused the most strenuous political argumentation and sterling reason of state. On the other hand he was wholly free from that quality which he ascribed to Lord George Sackville, a man "apt to take a sort of undecided, equivocal, narrow ground, that evades the substantial merits of the question, and puts the whole upon some temporary, local, accidental, or personal consideration." And it is instructive to compare the foundation of all his pleas for the colonists with that on which they erected their own theoretic declaration of independence. The American leaders were impregnated with the metaphysical ideas of rights which had come to them from the rising revolutionary school in France. Burke no more adopted the doctrines of Jefferson in 1776 than he adopted the doctrines of Robespierre in 1793. He says

nothing about men being born free and equal, and on the other hand he never denies the position of the court and the country at large, that the home legislature, being sovereign, had the right to tax the colonies. What he does say is that the exercise of such a right was not practicable; that if it were practicable, it was inexpedient; and that, even if this had not been inexpedient, yet, after the colonies had taken to arms, to crush their resistance by military force would not be more disastrous to them than it would be unfortunate for the ancient liberties of Great Britain. Into abstract discussion he would not enter. "Show the thing you contend for to be reason; show it to be common sense; show it to be the means of attaining some useful end."

It is one of the signs of Burke's singular and varied eminence that hardly any two people agree precisely which of his works to mark as the masterpiece. Every speech or tract that he composed on a great subject becomes, as we read it, the rival of every other. But the *Speech on Conciliation* (1775) has, perhaps, been more universally admired than any of his other productions, partly because its maxims are of a simpler and less disputable kind than those which adorn the pieces on France, and partly because it is most strongly characterized by that deep ethical quality which is the prime secret of Burke's great style and literary mastery. In this speech, moreover, and in the only less powerful one of the preceding year upon American taxation, as well as in the *Letter to the Sheriffs of Bristol* in 1777, we see the all-important truth conspicuously illustrated that half of his eloquence always comes of the thoroughness with which he gets up his case. No eminent man has ever done more than Burke to justify the definition of genius as the consummation of the faculty of taking pains. Labor incessant and intense, if it was not the source, was at least an inseparable condition of his power. And magnificent rhetorician though he was, his labor was given less to his diction than to the facts; his heart was less in the form than the matter. It is true that his manuscripts were blotted and smeared, and that he made so many alterations in the proofs that the printer found it worth while to have the whole set up in type afresh. But there is no polish to his style, as in that of Junius for example, though there is something a thousand times better than polish. "Why will you not allow yourself to be persuaded," said Francis after reading the *Reflections*, "that polish is material to preservation?" Burke always accepted the rebuke, and flung himself into vindication of the sense, substance, and veracity of what he had written. His writing is magnificent, because he knew so much, thought so comprehensively, and felt so strongly.

The succession of failures in America, culminating in Cornwallis's surrender at York Town in October 1781, wearied the nation, and at length the persistent and powerful attacks of the opposition began to tell. "At this time," wrote Burke, in words of manly self-assertion, thirteen years afterwards, "having a momentary lead (1780-2), so aided and so encouraged, and as a feeble instrument in a mighty hand, — I do not say I saved my country, — I am sure I did my country important service. There were few indeed at that time that did not acknowledge it. It was but one voice, that no man in the kingdom better deserved an honorable provision should be made for him." In the spring of 1782 Lord North resigned. It seemed as if the court system which Burke had been denouncing for a dozen years was now finally broken, and as if the party which he had been the chief instrument in instructing, directing, and keeping together must now inevitably possess power for many years to come. Yet in a few months the whole fabric had fallen, and the Whigs were thrown

into opposition for the rest of the century. The story cannot be omitted in the most summary account of Burke's life. Lord Rockingham came into office on the fall of North. Burke was rewarded for services beyond price by being made Paymaster of the Forces, with the rank of a Privy Councillor. He had lost his seat for Bristol two years before, in consequence of his courageous advocacy of a measure of tolerance for the Catholics, and his still more courageous exposure of the enormities of the commercial policy of England towards Ireland. He sat during the rest of his parliamentary life (to 1794) for Malton, a pocket borough first of Lord Rockingham's, then of Lord Fitzwilliam's. Burke's first tenure of office was very brief. He had brought forward in 1780 a comprehensive scheme of economical reform, with the design of limiting the resources of jobbery and corruption which the Crown was able to use to strengthen its own sinister influence in Parliament.

The six years that followed the great rout of the orthodox Whigs were years of repose for the country, but it was now that Burke engaged in the most laborious and formidable enterprise of his life, the impeachment of Warren Hastings for high crimes and misdemeanors in his government of India. The story of Hastings's crimes, as Macaulay says, made the blood of Burke boil in his veins. He had a native abhorrence of cruelty, of injustice, of disorder, of oppression, of tyranny, and all these things in all their degrees marked Hastings's course in India. For it endured for fourteen years, and was just as burning and as terrible when Hastings was acquitted in 1795, as in the Select Committee of 1781 when Hastings's enormities were first revealed. "If I were to call for a reward," wrote Burke, "it would be for the services in which for fourteen years, without intermission, I showed the most industry and had the least success, I mean in the affairs of India; they are those on which I value myself the most; most for the importance; most for the labor; most for the judgment; most for constancy and perseverance in the pursuit."

Burke's first decisive step against Hastings was a motion for papers in the spring of 1786; the thanks of the House of Commons to the managers of the impeachment were voted in the summer of 1794. But in those eight years some of the most astonishing events in history had changed the political face of Europe. Burke was more than sixty years old when the states-general met at Versailles in the spring of 1789. He had taken a prominent part on the side of freedom in the revolution which stripped England of her empire in the West. He had taken a prominent part on the side of justice, humanity, and order, in dealing with the revolution which had brought to England the empire in the East. The same vehement passion for freedom, justice, humanity, and order was roused in him at a very early stage of the third great revolution in his history — the revolution which overthrew the old monarchy in France. From the first Burke looked on the events of 1789 with doubt and misgiving. He had been in France in 1773, where he had not only the famous vision of Marie Antoinette at Versailles, "glittering like the morning star, full of life, and splendor, and joy," but had also supped and discussed with some of the destroyers, the encyclopædists, "the sophisters, economists, and calculators." His first speech on his return to England was a warning (March 17, 1773) that the props of good government were beginning to fail under the systematic attacks of unbelievers, and that principles were being propagated that would not leave to civil society any stability. The apprehension never died out in his mind; and when he knew that the principles and abstractions, the un-English dialect and

destructive dialectic of his former acquaintances were predominant in the National Assembly, his suspicion that the movement would end in disastrous miscarriage waxed into certainty.

The scene grew still more sinister in his eyes after the march of the mob from Paris to Versailles in October, and the violent transport of the king and queen from Versailles to Paris. The same hatred of lawlessness and violence which fired him with a divine rage against the Indian malefactors was aroused by the violence and lawlessness of the Parisian insurgents. The same disgust for abstractions and naked doctrines of right that had stirred him against the pretensions of the British Parliament in 1774 and 1776, was revived in as lively a degree by political conceptions which he judged to be identical in the French Assembly of 1789. And this anger and disgust were exasperated by the dread with which certain proceedings in England had inspired him, that the aims, principles, methods, and language which he so misdoubted or abhorred in France were likely to infect the people of Great Britain.

In November 1790 the town, which had long been eagerly expecting a manifesto from Burke's pen, was electrified by the *Reflections on the Revolution in France, and on the proceedings in certain societies in London relative to that event*. Eleven editions were exhausted in little more than a year, and there is probably not much exaggeration in the estimate that 30,000 copies were sold before Burke's death seven years afterwards. George III. was extravagantly delighted; Stanislaus of Poland sent Burke words of thanks and high glorification and a gold medal. Catherine of Russia, the friend of Voltaire and the benefactress of Diderot, sent her congratulations to the man who denounced French philosophers as miscreants and wretches. "One wonders," Romilly said by-and-by, "that Burke is not ashamed at such success." Mackintosh replied to him temperately, and Tom Paine replied to him less temperately but far more trenchantly and more shrewdly in the *Rights of Man*. Arthur Young, with whom he had corresponded years before on the mysteries of deep plowing and fattening hogs, added a cogent polemical chapter to that ever admirable work, in which he showed that he knew as much more than Burke about the old system of France as he knew more than Burke about soils and roots. Philip Francis, to whom he had shown the proof-sheets, had tried to dissuade Burke from publishing his performance. The passage about Marie Antoinette, which has since become a stock piece in books of recitation, seemed to Francis a mere piece of foppery; for was she not a Messalina and a jade? "I know nothing of your story of Messalina," answered Burke; "am I obliged to prove judicially the virtues of all those I shall see suffering every kind of wrong and contumely and risk of life, before I endeavor to interest others in their sufferings? . . . Are not high rank, great splendor of descent, great personal elegance, and outward accomplishments ingredients of moment in forming the interest we take in the misfortunes of men? . . . I tell you again that the recollection of the manner in which I saw the queen of France in 1774, and the contrast between that brilliancy, splendor, and beauty, with the prostrate homage of a nation to her, and the abominable scene of 1789 which I was describing, *did* draw tears from me and wetted my paper. These tears came again into my eyes almost as often as I looked at the description,—they may again. You do not believe this fact, nor that these are my real feelings; but that the whole is affected, or as you express it, downright foppery. My friend, I tell you it is truth; and that it is true and will be truth when you and I are no more; and will exist as long as men with their natural feelings shall exist."

One secret of Burke's views of the Revolution was the contempt which he had conceived for the popular leaders in the earlier stages of the movement. In spite of much excellence of intention, much heroism, much energy, it is hardly to be denied that the leaders whom that movement brought to the surface were almost without exception men of the poorest political capacity. Danton, no doubt, was abler than most of the others, yet the timidity or temerity with which he allowed himself to be vanquished by Robespierre showed that even he was not a man of commanding quality. The spectacle of men so rash, and so incapable of controlling the forces which they seemed to have presumptuously summoned, excited in Burke both indignation and contempt.

Burke's view of French affairs, however consistent with all his former political conceptions, put an end to more than one of his old political friendships. He had never been popular in the House of Commons, and the vehemence, sometimes amounting to fury, which he had shown in the debates on the India Bill, on the regency, on the impeachment of Hastings, had made him unpopular even among men on his own side. What Burke valued was good government. His *Report on the Causes of the Duration of Mr. Hastings's Trial* shows how wide and sound were his views of law reform. His *Thoughts on Scarcity* attest his enlightenment on the central necessities of trade and manufacture, and even furnished arguments to Cobden fifty years afterwards.

In the summer of 1794 Burke was struck to the ground by a blow to his deepest affection in life, and he never recovered from it. His whole soul was wrapped up in his only son, of whose abilities he had the most extravagant estimate and hope. All the evidence goes to show that Richard Burke was one of the most presumptuous and empty-headed of human beings. "He is the most impudent and opiniative fellow I ever knew," said Wolfe Tone. Gilbert Elliott, a very different man, gives the same account. In the summer of 1791 he despatched his son to Coblenz to give advice to the royalist exiles, then under the direction of Calonne, and to report to Beaconsfield their disposition and prospects. Richard Burke was received with many compliments, but of course nothing came of his mission.

At the close of the session of 1794 the impeachment of Hastings had come to an end, and Burke bade farewell to Parliament. Richard Burke was elected in his father's place at Malton. The king was bent on making the champion of the old order of Europe a peer. His title was to be Lord Beaconsfield, and it was designed to annex to the title an income for three lives. The patent was being made ready, when all was arrested by the sudden death of the son who was to Burke more than life. The old man's grief was agonizing and inconsolable. "The storm has gone over me," he wrote in words which are well known, but which can hardly be repeated too often for any one who has an ear for the cadences of noble and pathetic speech, "The storm has gone over me, and I lie like one of those old oaks which the late hurricane has scattered about me. I am stripped of all my honors; I am torn up by the roots and lie prostrate on the earth. . . . I am alone. I have none to meet my enemies in the gate. . . . I live in an inverted order. They who ought to have succeeded me have gone before me. They who should have been to me as posterity are in the place of ancestors."

A pension of £2500 was all that Burke could now be persuaded to accept. The duke of Bedford and Lord Lauderdale made some remarks in Parliament upon this paltry reward to a man who, in conducting a great trial

on the public behalf, had worked harder for nearly ten years than any minister in any cabinet of the reign. But it was not yet safe to kick up heels in face of the dying lion.

In the spring of 1796 Pitt's constant anxiety for peace had become more earnest than ever. He had found out the instability of the coalition and the power of France. Like the thrifty steward that he was, he saw with growing concern the waste of the national resources, and the strain upon commerce, with a public debt swollen to what then seemed the desperate sum of £400,000,000. Burke at the notion of negotiation flamed out in the *Letters on a Regicide Peace*, in some respect the most splendid of all his compositions.

When the third and most impressive of these astonishing productions came into the hands of the public, the writer was no more. Burke died on the 8th of July, 1797. Fox, who with all his faults was never wanting in a fine and generous sensibility, proposed that there should be a public funeral, and that the body should lie among the illustrious dead in Westminster Abbey. Burke, however, had left strict injunctions that his burial should be private; and he was laid in the little church at Beaconsfield.

BURKE, ROBERT O'HARA (1821-1861), one of the great explorers of the continent of Australia, was born in 1821 at St. Clerans in Galway, Ireland. He left the Belgian College where he had been educated to enter the military service of Austria, but in 1848 returned to Ireland, and obtained a post in the mounted police. He next went to Australia, and served for some time as police-inspector, first in Melbourne and then in the district of Beechworth, till the outbreak of the Crimean War induced him to return to Europe to take part in the campaign. Peace was restored however, before he arrived, and he accordingly went back to Australia and resumed his connection with the police force. In 1860 he was appointed one of the leaders of a Government exploring expedition, and in this capacity was one of the first Europeans to traverse the continent from south to north. He died June 28, 1861.

BURLAMAQUI, JEAN JACQUES, celebrated writer on natural law, was born at Geneva on the 24th June 1694, and died at the same place on the 3d April 1748.

BURLINGAME, a town of Osage county, Kan., twenty-seven miles from Topeka and thirty-four miles from Emporia. It contains a bank, five churches, pottery works, coal mines and several mills, and a population of 5,000. It has good railroad and telegraph facilities.

BURLINGTON, a city and port of entry of the United States, capital of Chittenden county, in Vermont. It has a fine situation on the eastern shore of Lake Champlain, and is laid out with great regularity around a central square. Its principal buildings are the Vermont University (which occupies the summit of the slope on which the city is built), the Vermont Episcopal Institute, the court-houses, a jail, a custom-house, and a marine-hospital. The university was founded in 1791, and was endowed by the state with 29,000 acres of land,—to which in 1865 were added 150,000 acres of national grant by the incorporation of the agricultural college. There is a medical school attached. Burlington carries on an extensive trade in lumber, and has the most important share in the shipping traffic of the lake. Its harbor is defended by a breakwater, and a lighthouse was erected at the mouth of the bay in 1862. To the north of the Onion River, but united to Burlington by a bridge, lies the flourishing village of Winooski, with factories and mills. The history of Burlington only dates from 1783; its first church from 1795, and its incorporation as a city from 1864. Population (1890), 14,590.

BURLINGTON, a city and port of entry of the United States, in Burlington county, N. J., eighteen miles northeast of Philadelphia, on the Delaware. It is well built, has an abundant supply of water, and forms a favorite summer resort for the inhabitants of Philadelphia. The first settlement of the city dates from 1667, and was principally due to a number of Quakers. New Beverly, as the place was originally called, grew rapidly in importance, and was the seat of the Government of New Jersey till 1790. It had a large trade with the West Indies, and was raised to the rank of a bishopric, Queen Anne endowing the church with an extensive estate. Population (1890), 8,222.

BURLINGTON, the county seat of Des Moines county, Iowa, is situated on the Mississippi river, 82 miles below Davenport, 45 miles above Keokuk, and 207 miles by rail southwest of Chicago. It is an important manufacturing city, and one of the oldest in the State, and within the last decade has advanced rapidly in population and wealth. Burlington was first settled about 1835, and for a time was the capital of the Territory of Iowa, the first Territorial legislature meeting there. It became an important shipping point for steamers on the Mississippi, and as an outfitting place for emigrants going into the interior of Iowa and to Nebraska and Kansas. But its growth properly began with the development of the railroad system, and has been steady and uniform. Burlington enjoys the best of railroad facilities, trunk lines radiating in every direction from the city.

The Mississippi river is crossed here by a magnificent railroad bridge and there is still considerable shipping of heavy freight by the river. The city occupies a commanding position, the bluffs being crowned by substantial and handsome residences, the main business streets rising gradually from the river. Burlington has two daily and several weekly newspapers, and contains sixteen churches, a public library, a high school, and several grammar schools, three national banks, an opera house, a new court-house, and the Burlington (Baptist) University. The business section is solidly built of brick and stone and the city is lighted by gas and electricity. There are several lines of street railroad, paid fire and police departments, water works, and a good system of sewers. Coal and limestone are found in great quantities in the neighborhood, and the surrounding country is extremely productive. The manufactures are numerous and varied, including flour mills, packing houses, foundries, breweries, soap works, planing mills, sash, door and blind factories, several manufactories of agricultural implements and very extensive railroad shops. The population (1890) is 22,565.

BURLINGTON, the capital of Coffey county, Kan., is situated on the right bank of the Neosho river, twenty-eight miles southeast of Emporia and sixty miles from Topeka, with which it has direct railroad communication. It contains a bank, a woolen factory, flour mills, seven churches, schools, and two newspaper offices. Population (1890), 3,000.

BURMA is the largest of all the provinces of the Indian empire. It stretches from 28° latitude, on the confines of Tibet, southward for 1,100 miles, to 10° latitude, far down the Malay Peninsula, and from 103° longitude, on the Chinese border, for 700 miles westward to the Bay of Bengal. It is coterminous with China and Siam on the east; and for the rest it is bounded by the Indian provinces of Bengal and Assam, and by the ocean. Its total area is about 280,000 square miles, of which one-third belongs to the old province of Lower Burma, and two-thirds to the new province of Upper Burma. The country consists of the great basin of the Irawadi and its affluents; the rugged

country drained by the Salween and Sittang rivers, on the upper waters of which are situated the Shan States; and the narrow maritime provinces of Arakan and Tenasserim. The deltas of the Irawadi, Salween, Sittang and Koladan rivers are flat plains, and there are smaller areas of level land at the mouths and on the banks of some of the feeders of the Irawadi. The level, cultivable plains probably do not exceed 50,000 square miles in all. The rest of Burma is hilly, broken country, covered for the most part with forest. There are large highland tracts, with a ruling elevation of 2,000 to 4,000 feet. The principal hill-ranges are Patkoi Mountains in the north, which reach at one point a height of 12,000 feet, and from which outliers jut far down into the valleys of the Irawadi and the Chindwin; the China hills in the northeast, culminating in perpetual snow peaks 15,000 feet high, close to the Chinese city of Talifoo; the Arakan Yoma range, running from Bengal to Cape Negrais; the Pegu Yoma range, separating the Sittang valley from the basin of the Irawadi; the Tenasserim range, running from the Salween river to the foot of the Malay Peninsula; and lastly, the Shan States, a vast upland, cleft by deep chasms, in which flow the Salween and the Cambodia rivers and their feeders. The chief river of Burma is the Irawadi, with a course of probably 1,100 miles from its unknown source in the snows of Tibet down to the Bay of Bengal. This great stream is navigable all the year round by river steamers, which, with their flats, carry thousands of tons of cargo and hundreds of passengers up to Bhamo, 700 miles from the sea, and fifty miles from the Chinese border. Some hundreds of miles of deltaic channels of the Irawadi are also navigable by large river steamers. Of the affluents of the Irawadi only the Chindwin, the Shweli and the Myit-nge are navigable by large craft. The Chindwin is navigable for 300 miles in the rainy, and 150 miles in the dry season. The Salween river, which has its origin in the Tibet snows, is navigable for only about eighty miles from the sea. The Sittang river rises in the hills to the southeast of Mandalay. All these rivers and many of their feeders are traversed in the rainy season by tens of thousands of native barges and boats, which carry cargoes up to 120 tons. The rivers are the chief, and were, until British occupation, the only highways of the country. During the dry season all the rivers, except the very largest and the tidal channels, are too low for navigation; and therefore, until recently, no movement of heavy goods for any distance could take place from December to July over the greater part of the country. During the flood season the Burma rivers top their banks. The Irawadi at Prome, 200 miles from the sea, is about a mile wide, and there the difference between the highest and lowest level of the river is forty-five feet. During the great floods the river water spreads over the country; and sometimes the flood-waters of the Irawadi submerge the country for ten or fifteen miles on either side from a depth of four to fourteen feet. The inundated villages, however, do not suffer to any considerable extent, as the houses are all built on piles, and the flood-waters move slowly.

Climate and Rainfall.—The rainfall varies widely in different parts of Burma. Along the coast from Akyab to Mergui the average rainfall exceeds 200 inches a year at each of the six registering stations. At Bassin, Rangoon, and Pegu, a little way inland, it averages 100 inches. Up the Irawadi valley the rainfall decreases rapidly; at Prome it is forty-two inches, and at Thayetmyo only thirty-seven inches. Information about the rainfall of Upper Burma is as yet meager. Apparently there is a dry belt, with less than thirty inches of rain per annum, from Thayetmyo to Myingyan; at Man-

dalay, where the hills approach the river, the rainfall is about forty-five inches a year; it may increase to sixty inches at Katha, and perhaps to eighty at Bhamo. On the Upper Chindwin, on the Ruby Mines plateau, on the Shan hills, and in the narrow valleys of the Salween and Sittang, the rainfall is heavy. In the delta and along the coast the rainy season lasts for five, six, or sometimes even seven months. During those months the climate is very moist, but the heat is by no means excessive. From the middle of November to the end of January the climate is cool, and the thermometer at dawn sometimes falls as low as 60° Fahr. From February to the end of April the climate of the delta is dry and hot, and the thermometer occasionally reaches 100° in the shade; but the nights are always cool, and there never is any hot wind as in India. Higher up the Irawadi valley at Prome, Thayetmyo, and in the dry belt, the climate is much hotter and dryer in the summer, and it is much cooler in the winter months. At Mandalay and Bhamo the months of December and January are cooler still; at Mandalay and over the dry belt, the dust and glare are sometimes excessive in April and May. On the Ruby Mines plateau, at an elevation of 5,600 feet, the thermometer in the shade does not exceed 86° in the hottest season; in this neighborhood an attempt is being made to found a sanatorium for European troops. The climate of Burma, presenting as it does a wider range of extremes, is more trying to Europeans than that of the plains of India.

Flora and Fauna.—The forests of Burma contain an abundance of useful and beautiful trees. The most important and valuable tree is the Teak (*Tectona grandis*). Teak trees, as well as trees of other kinds, are seen 15 to 25 feet in girth, and 90 to 120 feet from the ground to the lowest branch. The most beautiful, and not the least useful, of the products of the Burma forests is the bamboo. Different species, from the slender bamboo, used for arrows, up to the giant bamboo, 9 inches thick and 100 feet high, are employed for manifold purposes (see BAMBOO). Several Burma trees produce valuable wood-oil, varnish, tannin, and gums; and many creepers yield valuable fibers. There are rubber yielding creepers besides the *Ficus elastica*; and cutch, obtained from the *Acacia catechu*, is a most valuable gum. Orchids, ferns and mosses of much beauty are found in abundance. Ground flowers are comparatively few; but a Burma forest, particularly in the month of March, is quite bright with the many colors, and sweet with the varying scents of thousands of flowering trees, flowering creepers, flowering shrubs, and orchids.

Among the wild animals of Burma may be mentioned the elephant, three species of rhinoceros, tapir, buffalo, gayal, many kinds of deer, small wild cattle, hog, tiger, leopard, bear, and wild dog. The forests are so vast, and in parts so dense, that the pursuit of wild animals is difficult. Among domestic animals, the buffalo, oxen, elephants and ponies are all good. No horses are bred, sheep and goats are rare, and donkeys are hardly ever seen. The domestic fowls are better than in India. Pythons and cobras abound; and the hamadryad, the most deadly of Eastern snakes, is occasionally met. The variety of birds is immense: the peacock of Burma is larger and more gorgeous than its Indian congener; the argus pheasant, the golden and the silver pheasant, are the most brilliant of the gallinaceous birds; aquatic birds, from the pelican and wild goose down to the snipe, abound. The quantity and variety of the fish caught on the coasts and inland waters of Burma are prodigious. Alligators are not usually eaten, but every other inhabitant of the water, from the shark down to the shrimp and sea-slug, either fresh or

dried and salted, contributes to the food of the Burmese. Among the rarer delicacies furnished by various creatures may be named the edible birds'-nests, found in the caves of the Mergui Archipelago, and the eggs of the sea-turtle. The right to collect these eggs is leased by the state; and a small turtle bank, not one mile long, on an island near one of the mouths of the Irawadi, yields a rental of £1,500 (\$7,500) a year to the public treasury, for turtle eggs only.

Minerals.—The geology of Lower Burma has been examined by scientific officers of the survey. Gold is found in small quantities by washing river sand; silver is extracted at lead-workings in the Shan States, but not in great quantity. Iron, copper, lead, and tin exist in great quantity, but none of these pay for working, except tin, which is worked by Chinese settlers in the Mergui district. Attempts to work tin and lead after European methods have failed. Earth oil, or petroleum, is found at many points on the Irawadi river, and in Arakan. The Irawadi oil is a dark, viscous fluid, yielding only 20 per cent. of burning oil; while the Arakan oil is a light colored, clear fluid, that can be burned in a lamp as it comes from the well. About 550 wells in the Irawadi oil region, and 150 wells in the Arakan region, are or have been worked. As yet, nothing in the shape of a springing well, or of a constant supply, has been found. Jade and amber are both found and worked in the country north of Bhamo, on the feeders of the Chindwin river. The mines are worked by the local tribes under the superintendence of Chinese; and jade is exported to China and Japan, to a value of £50,000 (\$250,000) a year. Fine white marble is found near Mandalay, and is used for images of Buddha, and for ornamenting pagodas. Coal exists at several places in the Shan States, at Kale on the Chindwin river, and at Thingadaw, on the Irawadi river above Mandalay. All these coal sources are in Upper Burma; one only, that on the Chindwin river, is being worked for steamer fuel; some of the others were examined in 1887. The coal found as yet in Lower Burma has proved of poor quality, and scanty in quantity. Limestone of good type is found and burned in many parts. Building stones are found in most districts outside the delta; near Mandalay the stone is particularly good. The ruby mines north of Mandalay yield the best rubies in the world. The ruby-yielding area stretches over about 200 square miles. Rubies are found by sinking holes down to the ruby bearing stratum, and then sifting or washing the earth raised therefrom. The mines were worked in rude fashion, and yielded about £100,000, (\$500,000) worth of rubies a year. All large stones were royal property, but, in practice, most of the valuable gems were secreted and smuggled away. European machinery and skill have since 1888 been applied to working these mines.

Population.—The census of February, 1881, showed the population of Lower Burma to be 3,736,771, and in 1888 it was about four and three-fourths millions. It is conjectured that the population of Upper Burma, including the Shan States, cannot be less than four and one-half millions. It may be much more. Probably the whole population of Burma may be distributed somewhat thus:

Burmans.....	5,450,000
Shans.....	2,000,000
Karens.....	700,000
Other hill tribes.....	800,000
Indians, Chinese, Europeans and others.....	300,000
Total.....	9,250,000

The Burmans are a short-statured, thick-set people; they wear long hair on their heads, but have little hair on their faces. They are flat featured, and nearer the

Chinese than the Aryan type. They are excitable and impulsive; fond of fun and laughter; much given to dramas, dances, and shows of all kinds; up to a certain point courageous. They are callous to suffering in others, and ready to commit crimes of violence. Dacoity (or robbery with violence by gangs) is a common crime among Burmans; the proportion of violent crimes and of convicts to the population is far larger than in any other Indian province. Burmese women are well treated; they go to market, keep shops, and take their full share in social and domestic affairs. Men and women are well clad; they delight in gay colors and in silk attire. Burmese young men and maidens arrange their matrimonial affairs for themselves when they grow up. Women, as well as men, can procure divorce for good cause. Widows and divorced wives can re-marry. Burmans make good peasant farmers, good boatmen, good shopkeepers, but they are unmethodical and unpunctual; they do not make good soldiers, or policemen, or factory hands. They are lavish in their expenditure, and seldom hoard money. The general level of prosperity and standard of comfort are high; there are few poor, and no beggars. The wages of unskilled labor may be quoted at 4 rupees (\$2.00) a week in the Delta districts, and at 2 rupees (\$1.00) in Upper Burma, as compared with 1¼ rupees (\$0.62½) in continental India. The staple food of the people is rice, which is as cheap as in India. Burmans eat fish or meat daily, and have more liberal diet than Indians of the same class. The existence of ample fertile land, near to good markets, and available on payment of a moderate land tax, explains the high rate of wages. Burmans are Buddhists by religion, and their form of Buddhism is purer than in any other country except Ceylon. There are no large land owners, and there is no aristocracy in the country, except the official. The most influential and respected class are the Buddhist monks, whose function is to set an example of a correct life, and to instruct the young. These monks, of whom there are over 20,000 in the country, strictly observe their vows of celibacy and poverty, but they can unfrock themselves and return to the world when they please; they shave their heads, wear yellow robes, and live in monasteries. They are well cared for by their lay supporters. No monastery or pagoda has any property or endowment.

The Shans resemble the Burmans; but being Highlanders, are poorer, hardier, and more courageous. They have a remarkable turn for trading of all kinds. The Karens used to be nature worshippers; they were despised and oppressed by the Burmans among whom they lived. They are less clever, but more persevering and methodical than Burmans. A large number of Karens have embraced Christianity at the teaching of American Baptist missionaries; and now there are over 500 parishes of Christian Karens, containing nearly 200,000 souls; each parish supports its own church, pastor, school, and schoolmaster. The Chins live in the uplands between Arakan and the Chindwin river; they make yearly raids upon the peaceful villages of the Kubo and Chindwin valleys. Some Chin settlements are found on the hills of Lower Burma, where they live very poorly. The Kachins inhabit the hills and dominate the trade routes north and east of Bhamo; they used to levy blackmail on caravans to China. They are courageous, and defend their mountain fastnesses well. They command the approach to the jade mines, and the path from the Upper Irawadi into the Assam valley. Close under the Assam hills the Chins merge into, and are apparently identical with, the Singphos. The Paloungs are the wildest of the Shan races; they pluck and send to market wild tea from their hills.

Language.—The Burmese language is monosyllabic; it is written from left to right; the shape of the letters is circular; and most of the letters are perhaps rounded modifications of Sanskrit letters. The grammar is simple; but the language is difficult to acquire perfectly by reason of its many breathings and tones. Among other peculiarities of the language, two may be mentioned. Ordinary acts, such as sleeping, eating or walking are denoted by different words according to the status of the actor; and, when a number of persons or things is mentioned a generic noun is added after the numeral. For instance, one man—*lu ta youk*, or man one person; two monks—*pongyi na ba*, or monks two holy men; three cows—*nawa ma thon goun*, or she cattle three head; five hills—*toung nga lon*, or hills five round things; ten guns—*they nat tse let*, or guns ten long things. Burmese has been a written language for perhaps 800 years. The Shan language has also been long written; it is akin to Burmese. Karen has recently been reduced to writing by the American missionaries. None of the other hill tongues are written languages. The classical language of Burma is Pali, in which are written the sacred books and the laws of Manu. Pali manuscripts are kept in many monasteries, and learned monks study Pali. The older literature of Burma consists of manuscript Pali books on religion and law, and of Burmese translations from these books. There are some few more or less apocryphal histories in Burmese. The favorite literature of the country consists of dramas and poetical fables. Of late years tens of thousands of copies of old and new dramas and fables have been struck off by presses established at Rangoon. About 1872 it would have been nearly impossible to find a book anywhere save in a monastery or in a large town. Now, printed books are finding their way all over Lower Burma, and are sold in nearly every market. There are seven or eight vernacular newspapers, none of which has a circulation exceeding 600 copies. A. Judson has published a grammar (1866) and a dictionary (3d ed. 1877). The name Burma is, according to Yule in Hobson-Jobson, an English form of *Mram-ma*, pronounced by the people Bam-ma.

Education.—The primary schools of the country are the Buddhist monasteries, in which every Burman lad must, according to national custom, sanctioned by religion, spend a part of his boyhood as pupil and as acolyte. At every monastery boys are taught to read and write; in Lower Burma most monasteries have accepted inspection by public officials, and teach up to government standards. Some of the improved monastic schools have 120 or 150 boys apiece, and earn up to 100 pounds (\$500) a year as grants in aid. The census of 1881 showed that 61 per cent. of the males in Lower Burma above the age of twelve could read and write. Girls are not admitted to monastic schools; but they are frequently taught with boys in lay schools, and schools for girls are being gradually established. Recent statistics of education for Lower Burma show:

	Number of Institutions.	Boys and Girls on Rolls.
Colleges	1	20
Secondary Schools.....	70	8,881
Primary Schools (chiefly monastic) ..	5,325	149,621
Training and Technical Schools.....	16	410
Total	5,412	158,932

Boys, 143,715; girls 15,217.

Trade.—The external sea-borne trade of Lower Burma is valued at \$70,000,000. Most of this trade centers in Rangoon. The chief export items are rice, valued at \$30,000,000; teak timber, \$5,000,000; cutch, hides, cotton; while the chief import items are cotton piece goods and yarns, silk goods, coal, hardware, salt,

and metals. The trade between British and Upper Burma before the last war was valued at \$16,250,000. The great staple of Lower Burma is rice, of which as much as 1,150,000 tons are exported in one year. This great trade has been fostered by the establishment of rice-cleaning mills at all the sea-ports. Burma rice goes direct to England, Germany, Italy, America, Singapore, and China; it fetches a better price than any Eastern rice, except the Japan and Java products. It is usually quoted about 20 per cent. above the rice of Saigon or Bangkok. The activity of internal trade in Burma may be measured by the financial success of the Irawadi flotilla steamers, and of the two railways.

Arts and Manufactures.—The arts in which Burmese excel are wood-carving, silver repoussé work, woven silk fabrics of many colors, and lacquer-ware. In wood-carving Burmese workmen display much skill and imagination; each man draws on the wood his own patterns, according to his own fancy, before he begins with his graving tools. Much of the lacquer-ware is made on delicate woven bamboo frames. Excellent boats are built on all the larger rivers. The foundation or lower part of the hull always consists of a hollowed, widened trunk of the thingan tree; the sides are built up of planks; both prow and stern are raised several feet above the deck, and are ornamented with much beautiful and grotesque carving.

Public Works.—Under Burmese rule no roads or public buildings, save temples and monasteries, were made by the state; but certain valuable, though short, irrigation canals were made near Mandalay, Kyoukse, and Salen; while in many towns and villages brick pathways were laid down, and bridges were built, as works of religious merit. Since Burma came, province by province, under British rule, about 500 miles of metalled and bridged roads have been made, besides streets and roads in towns; three navigation canals, aggregating 70 miles in length, have been dug; many cross country roads and paths have been cleared; two railways, aggregating 330 miles, had already been opened, when a third (1888), 240 miles long, connected Mandalay, the capital of Upper Burma, with the sea-board; embankments to keep flood-waters off the land have been erected for 250 miles along the banks of the Irawadi river; the Irawadi Flotilla Company have placed on the Irawadi river a fleet of 47 large steamers and 100 flats; court houses, hospitals, schools, barracks, prisons, churches, and public offices have been built all over Lower Burma, and are being begun in Upper Burma; and the peace of the country is safeguarded by forts at Rangoon, Thayetmyo, Toungoo, Mandalay, and Bhamo, as well as by batteries at the ports of Rangoon and Maulmain.

Architecture.—Everybody in Burma lives in either a wooden house or a bamboo hut, save in the large towns where a few rich people have built masonry houses. Every house is built on posts or piles, so that the lowest floor is from one foot to twelve feet off the ground. In the inundated tracts house posts are necessarily high; but even in upland country a Burman always has a space between his lowest floor and the ground, as he deems it unhealthy to sleep on the ground. Well-to-do people build their houses of teak or other wood planks; the high-pitched roofs, with projecting eaves and carved finials, are picturesque. The solid pagodas of masonry, and the teak monasteries, surmounted by three or seven-tiered roofs, and ornamented with beautiful or grotesque carvings, are the most notable structures in Burma. Monasteries (kyoungs) and rest-houses (zayats) are erected in every town and village by devout Burmans, who consider that such works secure for them *kutho*—that is, merit or reward in the next life. Rangoon,

Maulmain, Prome, and Pegu all possess beautiful pagodas and monasteries; so also do many towns on the banks of the Irawadi. But Mandalay is famous beyond all places in Burma for the number of its monasteries. The finest and most sacred pagoda in Burma is the Shway Dagon Pagoda at Rangoon; and among the finest monasteries are the Atoo-ma-shee (incomparable) Monastery, and the Mee-baya (Queen's) Monastery at Mandalay. The most graceful wooden structure in Burma is the lofty woodwork spire above the hall of audience in the Mandalay palace; the exterior is gilded, beautifully carved, and lit up with innumerable mirror facets.

Finances.—The rate at which the revenues of Lower Burma have increased since the annexation of Pegu in 1854 may be seen from the following figures:

1855.....	total revenue,	45 lakhs.
1861.....	“ “	80 “
1871.....	“ “	123 “
1880.....	“ “	270 “
1886.....	“ “	308 “

As a lakh of rupees is equal to \$37,500 at exchange, these 308 lakhs would equal \$11,550,000. But 34 lakhs must be deducted as being rather municipal than public; so that the total public revenue in 1886 was 274 lakhs (\$10,275,000). In the same year the imperial expenditure was 184 lakhs; so that in this one year a surplus of 90 lakhs (\$3,375,000) was contributed by Lower Burma to the Indian treasury.

Land is held by petty occupiers from the state, on payment of a land tax, ranging ordinarily from half a rupee to two and one-half rupees per acre. The average value of the rice crop on an acre may be quoted at twenty rupees; so that the land tax is probably one-tenth of the gross yield. The total area under cultivation in 1887 was 4,665,188 acres, of which six-sevenths were under rice, and 276,018 acres were kept fallow. The capitation tax is an old Burmese impost, leviable on all adult males. The usual rate is five rupees a year for each married man, and three rupees for each bachelor.

All forests belong to the state, and the teak tree is everywhere reserved by ancient custom and by law as a royal tree. In all reserve conservancy and reproduction of teak is scientifically conducted; and the net revenue of the Lower Burma forests is 8 lakhs.

Excise revenue is raised by a still-head duty of 4 rupees per gallon on all proof spirit, by fees paid for licenses to sell opium and liquor, and by the sale of Bengal opium to licensed vendors. The excise revenue remains low by reason of the refusal to license additional liquor or opium shops. There were in 1887 in Lower Burma only nineteen licensed opium shops as compared with sixty-eight shops in 1880. The salt-tax is levied at 3 annas per mound (about 10c. per cwt.), or one-tenth of the Indian salt-tax rate. Most of the salt consumed in Burma comes from Europe; some little is made locally from sea water and from brine-wells. The import customs revenue to the amount of 7 lakhs a year is derived from duty on imported liquors. Export duty to the amount of 50 lakhs is levied on rice exported by sea, at the rate of 3 annas per mound, equal to about 7 per cent. ad valorem.

During the best time of Burman rule the public revenues of Upper Burma were approximately about ninety-five lakhs; but, for various reasons, more than one-third of the nominal revenue of the late government was lost to the British administration. Meanwhile the cost of occupying the country by troops and military police is very great. And so Upper Burma caused a heavy drain on the Indian exchequer. Hereafter the old sources of revenue will improve, and new sources will arise; the cost of the army and military

police will be largely reduced as the country is brought into order. If the new province improves in the same ratio as Lower Burma has done during the years 1868-1888, the united province will pay its way long before the end of the century.

Government.—Burma is governed, in behalf of the viceroy of India, by a chief-commissioner, whose headquarters are mainly at Rangoon. The territory is divided into eight provinces, over each of which a commissioner is the supreme judicial and executive officer; and each commissionership is again divided into districts; the deputy commissioner is the head of his district in all executive, judicial, police, and revenue affairs; he has under him one or more European assistants; and each contains five or ten townships (myos), over which presides a Burman magistrate. Beneath the township officer are the circle officers (thugyis). In each village one of the chief inhabitants is appointed headman, and is invested with petty police and revenue powers. The district administration is supported by a strong police force, partly Burmans and partly Indians, who are commanded by European officers. A military garrison, consisting in January, 1888, of about 20,000 troops, occupies the country.

History.—The royal chronicles kept by the kings of Ava derive the earliest Burmese dynasty from Buddhist monarchs in India. It is conjectured that the Burmans came into the Irawadi valley from the highlands of Central Asia about 2,000 years ago, and amalgamated with the races then living in the country. It seems certain that the Buddhist religion and a Buddhist dynasty were established on the Irawadi; perhaps near Prome, about the time of the Norman conquest. In the 12th and 13th centuries flourished Burmese kings, who had their capital at Pagan on the Irawadi, about 400 miles from the sea, where are still extant most remarkable groups of temples built by that dynasty. In those days Burmese was a written language, and the Pagan kings had a civilized court. After that time the seat of power was transferred at intervals to Pegu, to Toungoo, to Prome, to Sagain, and to Ava. The empire was wrested from the Burmans and held for a short time by the Shans, and by the Talaings, a race who had preceded the Burmans in the Irawadi delta. In the 16th century a European traveler visited the court at Pegu, and has recorded an account of its magnificence. During the 17th century settlements in the Irawadi delta were made by the French and the English. At Syriam, near Rangoon, the Portuguese had established themselves nearly two centuries earlier. The last Burman dynasty was founded by Alomprau (Ahompya), a Burman villager of Monshobo (Shwebo), 50 miles north of Mandalay. He rose against the Pegu king in 1753, and eventually established his power over Burma in 1757, but died at the head of his army during an invasion of Siam. His successor carried Burmese arms to Arakan, Manipur, and the capital of Siam. During the latter part of the 18th century Siam revolted, and Burma suffered three invasions by Chinese armies from the north. Early in the nineteenth century the Burmese conquered Assam, and about 1820 they first came into contact with the British power in India. The Burmese made incursions into British territory, maltreated British subjects, attacked British troops, and refused repeated demands for redress. In 1824 broke out a war which ended (February, 1826,) with the Yandabo treaty, whereby Ava ceded to the British the provinces of Arakan and Tenasserim. For a while the Burmans observed the treaty. But after 1830, when a new king succeeded to the throne, slights and insults were put upon the resident, who had to leave the capital and beside at Rangoon. By various acts the Burmans

showed their hostility and contempt for the British. Eventually they seized certain British sailors, and refused redress. After a final protest by the British, war again broke out, and ended, after a ten months' duration, in the acquisition of Pegu by the British. King Mindoon Min, who succeeded to the throne in 1853, made compacts with the British, treated traders well, entertained an English resident at Mandalay, and abstained from anything that might provoke hostilities. During the crisis of the Indian Mutiny in 1857, the Burmans kept quiet. In 1879 this enlightened monarch died, and was succeeded by his son Thebaw, whose succession was signalized by the massacre of his brothers, sisters, and relatives. The British resident protested against these barbarities, and his position at Mandalay was made so perilous that he was recalled. From 1880 to 1885 the Mandalay government showed unfriendliness in many ways; infringed the terms of the existing treaty, arranged to give to a rival European power preponderating influence on the Upper Irawadi; and imposed a fine of \$1,250,000 on a British company working in Upper Burma. The Mandalay government refused requests for redress; in October, 1885, an ultimatum was despatched to Mandalay, the terms of which were refused; and early in November, King Thebaw published a proclamation calling all Burmans to join him in driving the English into the sea. On the 15th of November a British force crossed the frontier and steamed up the Irawadi. What little resistance was made proved ineffectual. By the 28th of November the Burmese troops had laid down their arms at Ava; the capital (Mandalay), with the palace, fort, and arsenal, were surrendered; and the king was carried off captive to India. Early in 1886 the whole of Upper Burma was incorporated with the queen's Indian dominions. Since then a good deal of guerilla warfare has been waged in different parts of the country, and the people seemed unwilling to submit to British rule. But opposition is being overcome, and the country gradually pacified.

BURMANN, a Dutch family of scholars, originally from Cologne. (1) PETER "the elder," born at Utrecht in 1668, studied law at Utrecht and Leyden, and next traveled through Germany and Switzerland. At first an advocate, he became professor of history and rhetoric in the University of Utrecht, afterward of Greek at Leyden, where he died in 1741. In his literary career his hot temper and intolerant spirit involved him in many controversies, often with adversaries like Le Clerc and Bentley. His chief works are editions of the Latin classics, in stately quartos, with extensive notes, often dreary and tasteless to a degree. (2) PETER "the younger," nephew of the preceding, born in 1714 at Amsterdam, made his studies at Utrecht, and became, in succession, professor at Franeker, professor of the Amsterdam Athenæum, and keeper of the public library there. He retired in 1777 on a pension, and died the year after. He edited Virgil, Aristophanes, Claudian, and Propertius, but his editions are now little valued.

BUR-MARIGOLD (Bidens), a widely distributed genus of composite annuals.

BURNES, SIR ALEXANDER (1805-1841), a traveler in Central Asia, was born at Montrose in 1805. While serving in India, in the army of the East India Company, which he had joined in his seventeenth year, he made himself acquainted with Hindoostani and Persian, and thus obtained an appointment as interpreter at Surat in 1822. In 1831 he was sent to Lahore with a present of horses from King William to the Rajah Rungit Sing, and took advantage of the opportunity for extensive investigations. In the following year his travels were extended through Afghanistan, across the Hindu Kush to Bokhara and Persia. The narrative

which he published on his visit to England in 1834 added immensely to our knowledge of the countries traversed, and was one of the most popular books of the time. Soon after his return to India in 1835 he was appointed to the court of Sindh to secure a treaty for the navigation of the Indus; on the restoration of Shah Shujah in 1839, he became a regular political agent at Cabul, and remained there until his assassination in 1841 (November 2), during the heat of an insurrection.

BURNET, GILBERT (1643-1715), bishop of Salisbury, was born at Edinburgh in 1643, and was descended of an ancient family of the county of Aberdeen. His father had been bred to the law, and was at the Restoration appointed one of the lords of Session, with the title of Lord Crimond. Gilbert, the youngest son, was at ten years of age sent to Marischal College, Aberdeen, where he was admitted A.M. before he was fourteen years of age. His own inclination led him to the study of the civil and feudal law; but he afterwards changed his views, and, to the great satisfaction of his father, began to apply to divinity. He received ordination before the age of eighteen; and Sir Alexander Burnet, his cousin-german, offered him a benefice, which, however, he refused to accept.

In 1663, about two years after the death of his father, he went to England; and after six months stay at Oxford and Cambridge, returned to Scotland, which he soon left again to make a tour of some months, in 1664, in Holland and France. At Amsterdam, by the help of a Jewish rabbi, he perfected himself in the Hebrew language; and likewise became acquainted with the leading men of different persuasions tolerated in that country—Calvinists, Arminians, Lutherans, Anabaptists, Brownists, Papists, and Unitarians. In each of these sects he used frequently to declare he met with men of such unfeigned piety and virtue that he became fixed in a strong principle of universal charity, and an invincible abhorrence of all severities on account of religious dissensions.

Upon his return from his travels he was admitted minister of Saltoun, in which station he served five years in the most exemplary manner. In 1669 he published his *Modest and Free Conference between a Conformist and Nonconformist*. He became acquainted with the duchess of Hamilton, who communicated to him all the papers belonging to her father and her uncle; upon which he drew up the *Memoirs of the Dukes of Hamilton*, afterwards printed at London, in folio, in the year 1677. The duke of Lauderdale, hearing that he was engaged in this work, invited him to London, and introduced him to Charles II. He returned to Scotland, and married Lady Margaret Kennedy, daughter of the earl of Cassillis, a lady of great knowledge, and highly esteemed by the Presbyterians, to whose sentiments she was strongly inclined. As there was some disparity in their ages, that it might be sufficiently evident that the match was wholly owing to inclination, and not to avarice or ambition, the day before their marriage he delivered to the lady a deed, by which he renounced all pretensions to her fortune, which was very considerable, and must otherwise have fallen into his hands, she herself having no intention to secure it. His *Vindication of the Authority, Constitution, and Laws of the Church and State of Scotland* was printed at Glasgow, in 8vo, in the year 1673.

The first volume of his *History of the Reformation of the Church of England* was published in folio in 1681, the second in 1683, and the third in 1715. For this great work he received the thanks of both Houses of Parliament. Of the first two volumes he published an abridgment in the year 1683.

On the accession of James II. to the throne, having obtained leave to quit the kingdom, he first went to Paris, and lived in great retirement, till, contracting an acquaintance with Brigadier Stoupe, a Protestant gentleman in the French service, he made a tour with him to Italy. He met with an agreeable reception at Rome. Pope Innocent XI. hearing of his arrival, sent the captain of the Swiss guard to acquaint him he would give him a private audience in bed, to avoid the ceremony of kissing his holiness's slipper; but Dr. Burnet excused himself as well as he could. Here, with more zeal than prudence, he engaged in some religious disputes; and, on receiving an intimation from the Prince Borghese, he found it necessary to withdraw from this stronghold of priestcraft.

In 1698 he lost his wife by the small-pox; and as he was almost immediately after appointed preceptor to the duke of Gloucester, of whose education he took great care, this employment, and the tender age of his children, induced him the same year to supply her loss by a marriage with Mrs. Berkley, a widow, who was the eldest daughter of Sir Richard Blake. In 1699 he published his *Exposition of the Thirty-nine Articles*, which occasioned a charge against him in the Lower House of Convocation in the year 1701, but he was vindicated in the Upper House. His speech in the House of Lords in 1704 against the Bill to prevent occasional conformity was severely attacked. He formed a scheme for augmenting the small livings, which he pressed forward with such success, that an Act of Parliament was passed in the second year of Queen Anne, for the augmentation of the livings of the poor clergy. He died in 1715, and was interred in the church of St. James's, Clerkenwell, where a monument was erected to his memory.

Bishop Burnet's *History of his Own Time*, consisting of two large volumes in folio, was not published till several years after the author's death; the first volume appeared in 1724, and the second in 1734. This is a work of great and intrinsic value; without it our knowledge of the times would be exceedingly imperfect.

BURNET, THOMAS (1635-1715), best known as the author of *The Sacred Theory of the Earth*, was born at Croft in Yorkshire about the year 1635, but is supposed to have been descended of a Scottish family.

BURNETT, JAMES, LORD MONBODDO. See MONBODDO.

BURNEY, CHARLES, Doctor of Music (1726-1814), was born in the ancient city of Shrewsbury, the capital of Shropshire, on the 7th of April 1726. His first music master was Mr. Baker, organist of Chester Cathedral, and a pupil of Dr. John Blow. In 1749 he was appointed organist of a church in the city, with a salary of £30 a year; and he was also engaged as conductor of a concert established at the King's Arms, Cornhill. In that year and the next he composed the music of three dramas for Drury Lane theatre—*Alfred*, *Robin Hood*, and *Queen Mab*. In 1766 he produced, at Drury lane, a free English version and adaptation of J. J. Rousseau's operetta *Le Devin du Village*, under the title of *The Cunning Man*, which was favorably received. The university of Oxford conferred upon him, on 23d June 1769, the degree of bachelor and doctor of music, on which occasion he presided at the performance of his exercise for these degrees. This consisted of an anthem, with an overture, solos, recitatives, and choruses, accompanied by instruments, besides a vocal anthem in eight parts, which was not performed. His friend, C. P. E. Bach, requested a copy of this exercise, and had it performed in St. Catharine's Church at Hamburg, under his own direction, in 1773. It was repeatedly performed at Oxford, "after it had fulfilled its original destination," as Burney tells us (*Hist. of Music*, vol. iii. p.

329); and he apologizes as follows for saying so much about it:—"It is hoped that the reader will pardon this *egotism*, which has been extorted from me by occasional assertions, 'that I neither liked nor had studied church music.'" Towards the close of his life, Burney contributed to the Rev. Dr. Rees's *Cyclopædia* all the musical articles belonging to the department of Natural Philosophy and Mathematics. For these articles he received £1000, which seems a remarkable remuneration, considering that most of his materials were merely transcribed from his own *History of Music*. In 1789, through the treasury influence of his friend Edmund Burke, he was appointed organist to the chapel of Chelsea Hospital, and he resided in the hospital for the remainder of his life. He was a member of the Institute of France, and nominated a correspondent in the class of the Fine Arts, in the year 1810. He died at Chelsea College on the 12th of April 1814, and was interred in the burying-ground of the college on the 20th of the same month.

Burney had a wide circle of acquaintances among the distinguished artists and literary men of his day. At one time he thought of writing a life of his friend Dr. Samuel Johnson; but he retired before the crowd of biographers who rushed into that field.

BURNEY, CHARLES, son of the preceding, an eminent classical scholar, was born at Lynn, in Norfolk, in 1757. At the age of eleven he was sent to the Charterhouse in London, whence he removed to Caius College, Cambridge; but in 1791 he received the diploma of LL.D. from Aberdeen, and in 1808 that of D.D. from Cambridge. In 1783 he married the daughter of Dr. Rose, the translator of Sallust. He contributed at this time many articles to the *Monthly Review*, and afterwards edited for two or three years the *London Magazine*. In the course of time he realized a handsome fortune, a great part of which he expended in the formation of his splendid library. The manuscripts and rare books collected by him were considered so valuable that at his death, which happened in 1817, they were purchased by the nation and deposited in the British Museum.

BURNEY, FRANCES. See D'ARBLAY.

BURNLEY, a manufacturing town and municipal and parliamentary borough of England, 22 miles N. of Manchester. Its staple manufacture is cotton, which in 1888 gave employment to 7972 men and 8267 women of twenty years of age and upwards. Worsteds, which was formerly the chief article, is still manufactured to a considerable extent. Calico-printing, machine-making, brewing, tanning, and several other important industries are carried on in the town; and in the neighborhood there are iron mines and stone quarries, which gave employment in 1888 to 1376 and 360 workmen respectively. The population of the parliamentary borough in 1889 was 5,0,000.

BURNOUF, EUGÈNE (1801-1852), an Oriental scholar, was born at Paris in 1801. He was educated for the legal profession, but soon after taking his degree began to devote himself entirely to the study of Oriental languages. The great work he undertook was the deciphering of the Zend manuscripts brought to France by Anquetil du Perron. By his labors a knowledge of the Persian language and religion was first brought into the scientific world of Europe. He died on the 28th May 1852. He was a member of the *Académie des Inscriptions*, and from 1832 had held the post of professor of Sanskrit in the Collège de France.

BURNOUF, JEAN LOUIS (1775-1844), the father of Eugène Burnouf, was born in 1775. During the intervals of leisure left him by his commercial employment he prosecuted his studies in classical literature. In 1817 he had been appointed professor of Latin eloquence at the Collège de France, and from 1811 to 1822 he acted

as president of the École Normale. In 1830 Burnouf was named inspector-general of studies, and on his resignation of this post in 1836 was made librarian of the university. He died in 1844. His most important work was the *Méthode pour étudier la Langue Grecque*, 1814, which marks an epoch in the study of Greek in France.

BURNS, ROBERT (1759-1796). In a company of German critics who were weighing the claims and estimating the rank of the poets, their contemporaries, the leader of their chorus, the genial humorist, Jean Paul Richter, is said to have hushed his audience when the name of Goethe was introduced, exclaiming: "We are not to sit in judgment on that sacred head." Scotsmen are apt to attach the same half-superstitious reverence to the name which is, more than any other, that of Scotland condensed in a personality, the representative of what is noblest and also of much that is erring in their race.

Robert Burns was born on the 25th of January 1759, in a cottage about two miles from Ayr, the eldest son of a small farmer, William Burness, of Kincardineshire stock, who wrought hard, practiced integrity, wished to bring up his children in the fear of God, but had to fight all his days against the winds and tides of adversity. "The poet," says Mr. Carlyle, his best biographer, "was fortunate in his father—a man of thoughtful intense character, as the best of our peasants are, valuing knowledge, possessing some and open-minded for more, of keen insight and devout heart, friendly and fearless: a fully unfolded man seldom found in any rank in society, and worth descending far in society to seek. . . . Had he been ever so little richer, the whole might have issued otherwise. But poverty sunk the whole family even below the reach of our cheap school system, and Burns remained a hard-worked plough-boy."

Through a series of migrations from one unfortunate farm to another; from Alloway (where he was taught to read), to Mt. Oliphant, and then (1777) to Lochlea in Tarbolton (where he learnt the rudiments of geometry), the poet remained in the same condition of straightened circumstances. At the age of thirteen he thrashed the corn with his own hands, at fifteen he was the principal laborer. The family kept no servant, and for several years butchers' meat was a thing unknown in the house. "This kind of life," he writes, "the cheerless gloom of a hermit and the unceasing toil of a galley-slave, brought me to my sixteenth year." His naturally robust frame was overtasked, and his nervous constitution received a fatal strain. His shoulders were bowed, and he became liable to headaches, palpitations, and fits of depressing melancholy. From these hard tasks and his fiery temperament, craving in vain for sympathy in a frigid air, grew the strong temptations on which Burns was largely wrecked,—the thirst for stimulants and the revolt against restraint which soon made headway and passed all bars. In the earlier portions of his career, a buoyant humor bore him up; and amid thick-coming shapes of ill he bated no jot of heart or hope. He was cheered by vague stirrings of ambition, which he pathetically compares to the "blind groping of Homer's Cyclops round the walls of his cave." Sent to school at Kirkoswald, he became, for his scant leisure, a great reader—eating at meal-times with a spoon in one hand and a book in the other,—and carrying a few small volumes in his pocket to study in spare moments in the fields. "The collection of songs," he tells us, "was my *vade mecum*. I pored over them driving my cart or walking to labor, song by song, verse by verse, carefully noting the true, tender, sublime, or fustian." He lingered over the ballads in his cold room by night; by

day, whilst whistling at the plough, he invented new forms and was inspired by fresh ideas, "gathering round him the memories and the traditions of his country till they became a mantle and a crown." It was among the furrows of his father's fields that he was inspired with the perpetually quoted wish—

"That I for poor auld Scotland's sake
Some useful plan or book could make,
Or sing a sang at least."

Burns had written his first verses of note, "Behind yon hills where Stinchar (afterwards Lugar) flows," when in 1781 he went to Irvine to learn the trade of a flax-dresser. "It was," he says, "an unlucky affair. As we were giving a welcome carousal to the New Year, the shop took fire and burned to ashes; and I was left, like a true poet, without a sixpence." His own heart, too, had unfortunately taken fire.

In Robert's 25th year his father died, full of sorrows and apprehensions for the gifted son who wrote for his tomb, in Alloway kirkyard, the fine epitaph ending with the characteristic line—

"For even his failings leaned to virtue's side."

Happily or unhappily, the current of his life was turned by the success of his first volume, which was published at Kilmarnock in June 1786. It contained some of his most justly celebrated poems, among others *The Twa Dogs*—a graphic idealization of Æsop,—*The Author's Prayer*, the *Address to the Deil*, *The Vision*, and *The Dream*, *Halloween*, *The Cottar's Saturday Night*, the lines *To a Mouse* and *To a Daisy*, *Scotch Drink*, *Man was made to Mourn*, the *Epistle to Davie*, and some of his most popular songs. This epitome of a genius so marvellous and so varied took his audience by storm. "The country murmured of him from sea to sea." "With his poems," says Robert Heron, "old and young, grave and gay, learned and ignorant, were alike transported. I was at that time resident in Galloway, and I can well remember how even plough boys and maid-servants would have gladly bestowed the wages they earned the most hardly, and which they wanted to purchase necessary clothing, if they might but procure the works of Burns. This first edition only brought the author £20 direct return, but it introduced him to the *literati* of Edinburgh, whither he was invited, and where he was welcomed, feasted, admired, and patronized. He appeared as a portent among the scholars of the northern capital and its university, and manifested, according to Mr. Lockhart, "in the whole strain of his bearing, his belief that in the society of the most eminent men of his nation he was where he was entitled to be, hardly deigning to flatter them by exhibiting a symptom of being flattered."

Sir Walter Scott bears a similar testimony to the dignified simplicity and almost exaggerated independence of the poet. "I saw him one day with several gentlemen of literary reputation. Of course we youngsters sat silent, looked, and listened. . . . I remember his shedding tears over a print representing a soldier lying dead in the snow, his dog sitting in misery on one side, on the other his widow with a child in her arms. His person was robust, his manners rustic, not clownish. . . . His countenance was more massive than it looks in any of the portraits, the eye alone indicated the poetic character and temperament. It was large and of a dark cast, and literally glowed when he spoke of feeling or interest. I never saw such another eye in a human head. His conversation expressed perfect self-confidence, without the least intrusive forwardness. He was much caressed in Edinburgh, but the efforts made for his relief were extremely trifling. Burns went from those meetings, where he had been posing professors (no hard

task), and turning the heads of duchesses, to share a bed in the garret of a writer's apprentice. During Burns' life it was reserved for William Pitt to recognize his place as a great poet; the more cautious critics of the North were satisfied to endorse him as a rustic prodigy, and brought upon themselves a share of his satire."

Burns began to feel himself prematurely old. Walking with a friend who proposed to him to join a county ball, he shook his head, saying "that's all over now," and adding a verse of Lady Grissel Baillie's ballad —

"O were we young as we ance hae been,
We sud hae been galloping down on yon green,
And linking it ower the lilly-white lea,
But were na my heart light I wad dee."

On the 4th of July 1796 he was seen to be dying. On the 12th he wrote to his cousin for the loan of £10 to save him from passing his last days in jail. On the 21st he was no more. On the 25th, when his last son came into the world, he was buried with local honors, the volunteers of the company to which he belonged firing three volleys over his grave.

BURNTISLAND, a parliamentary burgh and seaport of Scotland, in the county of Fife. It possesses a good pier, a dry dock, and a commodious harbor. Distilling and herring-fishing are carried on, and a good deal of coal and pig-iron are exported. The population in 1889 was 3422.

BURSLEM, a town of England, in the county of Staffordshire, 150 miles from London. Its most interesting building is the Wedgwood Institute, founded in 1863 in honor of the great manufacturer, who was born in the town in 1730. It comprises a school of art, a free library, and a museum; and the exterior is richly and peculiarly ornamented, to show the progress of fictile art. Population of township in 1889, 30,000.

BURTON, ROBERT, author of the *Anatomy of Melancholy*, was born at Lindley, Lincestershire, on the 8th February, 1576. He died on the 25th January, 1639-40. *The Anatomy of Melancholy, what it is, with all the kinds, causes, symptoms, prognostics, and several cures of it: In three partitions, with their several sections, members, and sub-sections, philosophically, medicinally, historically opened and cut up*, was published in 1621. Our information with regard to the author of this strange book is very scanty.

BURTON-ON-TRENT, an English town, in the northeast part of the hundred of Offlow, and the eastern division of the county of Stafford, and about 126 miles from London.

The history of the town may be said to begin with the erection of a church or monastery by the river side towards the close of the 9th century, and even to the close of the 16th century to have had its character and condition mainly determined by the fact of its being the centre of an important ecclesiastical district. Especially notable is the battle which was fought at the Old Bridge on the 18th of March 1321, between the forces of Edward II. and Thomas earl of Lancaster, in which the latter was defeated.

The sanitary conditions of the town has been greatly improved since the passing of "Burton-upon-Trent Act, 1853." Population 40,000.

BURTSCHIED, or BORCETTE, a town of Prussia, in the government of Aix-la-Chapelle (Aachen), and immediately to the S.E. of that city, with which it is connected by lines of houses. It occupies the slopes of a hill on the Wormfluss, and, like Aix-la-Chapelle, is famous for its mineral springs. One of these, known as the Mill-bath spring, is the hottest of Central Europe, having a temperature of 155° Fahr. The water is employed both externally and internally, and the establish-

ments for its use are extensive and convenient. The town carries on the manufacture of woollen yarn and cloth, cast-iron goods, and machinery, and possesses an important trade. Population in 1890, 12,000.

BURU, BOERO, or BOURO, an island of the East Indian Archipelago, belonging to the residency of Amboyna. Its surface is for the most part very mountainous, though the seaboard district is frequently alluvial and marshy from the deposits of the numerous rivers by which the island is traversed. Coffee, rice, and a variety of fruits, such as the lemon, orange, banana, pineapple, and cocoa-nut are readily grown, as well as sago, red-pepper, tobacco, and cotton. The only important export, however, is cajeput oil, a sudorific distilled from the leaves of the *Melaleuca Cajuputi*, or white-wood tree, of which about 8000 bottles are manufactured annually and sent to Java and other parts of the archipelago. The native flora is very rich, and the teak, ebony, and canari trees are especially abundant. Among the animals are buffaloes, hogs, deer, crocodiles, lizards, and snakes; and ducks, doves, cockatoos, and birds of paradise are the chief representatives of the feathered species. The inhabitants are mainly of two partially amalgamated races — Malays on the sea-coast like those of Celebes, and Alfuros in the interior akin to those in Ceram. The latter are still completely pagan, live in scattered hamlets, and have come very little in contact with any civilization. Among the maritime population a small number of Chinese, Arabs, and other races are also to be found.

BURY, a manufacturing town and parliamentary borough of England, in the county of Lancaster. The woollen-trade, introduced in the 14th century, and of such importance in the reign of Elizabeth that she appointed an officer to stamp the cloth, still gives employment to 1000 of the population, but it has been greatly surpassed in extent by the cotton manufacture, which with its various branches gave employment in 1889 to 16,256 men and women of the age of twenty years or upwards. The auxiliary and supplemental trades of engine-making, spindle-making, calico-printing, bleaching, and dyeing are also largely carried on; the paper manufacture employs about 600 people; upwards of 1000 miners find work in the neighboring coal-pits; 1200 workmen are engaged in the iron manufacture, and nearly 200 in the stone quarries. The town has been not only greatly extended but also improved since the middle of the century. Bury is a place of considerable antiquity, and was formerly the seat of a baronial castle, which was destroyed by the Parliamentary forces in 1644. Sir Robert Peel was born at Chamber Hall in the neighborhood, and his father did much for the prosperity of the town by the establishment of extensive printworks. A monument to the statesman now adorns the market place.

BURY, RICHARD DE. See AUNGERVYLE.

BURY ST. EDMUNDS, a market-town and municipal and parliamentary borough of England, in the county of Suffolk. In 1020 a monastery was founded there by Canute, which for magnificence and splendor surpassed every other establishment of the kind in Britain, with the exception of that of Glastonbury. It was 505 feet long and 212 wide, and contained twelve chapels. The privilege of coining was granted to the abbot by Edward the Confessor, and both Edward I. and Edward II. had mints in the town. In 1327 the people of the town and neighborhood attacked the monastery and reduced a large part of it to ashes. The tower or church-gate, one of the finest specimens of Norman architecture in the kingdom, and the western gate, erected about the middle of the 14th century, with a small portion of the walls, are all that now remain. St. Mary's church, a fine Gothic edifice,

with a beautifully carved roof, was erected in the earlier part of the fifteenth century and contains the tomb of Mary Tudor, Queen of Louis XII. of France. Population in 1889, 16,000.

BUSACO, a ridge (1,826 feet), in the Portuguese Province of Beira. Here Wellington, with 40,000 British and Portuguese troops, repulsed the attack of Massena with 65,000 French, September 27, 1810.

BUSBECQ AUGIER GHISLEN DE (1522-1592) a Flemish diplomatist and traveller, was born at Commines in 1522, and was educated at the universities of Louvain, Paris, Venice, Bologna, and Padua. He made a collection of curious inscriptions and manuscripts; and in his second journey to Constantinople he carried with him an artist to make drawings of the rarest plants and animals. In 1562 he returned to Vienna, and was appointed tutor to the sons of the Emperor Maximilian II. Busbecq died at St. Germain, near Rouen, October 28, 1592. He wrote a *Discourse of the State of the Ottoman Empire*, and a *Relation of his Two Journeys to Turkey*.

BUSBY, RICHARD, D.C.L., head-master of Westminster school, was born at Lutton in Lincolnshire in 1606. He was educated at the school which he afterwards superintended for so long a period, and first signalized himself by gaining a king's scholarship. From Westminster he removed to Christ Church College, Oxford, where he graduated in 1628. In his thirty-third year he had already become renowned for the obstinate zeal with which he supported the falling dynasty of the Stuarts, and was rewarded for his services with the prebend and rectory of Cudworth, with the chapel of Knowle annexed, in Somersetshire. Next year he became head-master of Westminster school. His reputation as a teacher soon became so great that many of the noblest families entrusted their children to his care. He himself once boasted that sixteen of the bishops who then occupied the bench had been birched with his "little rod." No school in England has on the whole produced so many eminent men as Westminster did under the régime of Busby. Busby died in 1695, in his ninetieth year, and was buried in Westminster Abbey, where his effigy is still to be seen.

BUSCA, a town of Italy, in the province of Cuneo, 9 miles from the city of that name, on the left bank of the Macra, a confluent of the Po. Population, 9533.

BUSCHING, ANTON FRIEDRICH (1724-1793), one of the founders of modern scientific geography, was born at Stadthagen in Schaumburg-Lippe, on the 27th September 1724. In his youth he was harshly treated by his father; but a clergyman of the name of Hauber, pleased with his talents, undertook to give him gratuitous instruction, and afterwards enabled him to continue his studies at Halle. There, by application and good conduct, he acquired numerous friends, and in 1748 was appointed tutor in the family of Count de Lynars, who was then going as ambassador to St. Petersburg. On this journey he became sensible of the defective state of geographical science, and resolved to devote his life to its improvement. Withdrawing as soon as possible from the count's family, he went to reside at Copenhagen, and devoted himself entirely to this new pursuit. In 1752 he published a *Description of the Counties of Schleswig and Holstein*, a work that was much approved. In 1754 he removed to Göttingen, and married Christiana Dilthey, a young lady of some temporary reputation as a poetess. He died in May, 1793.

BUSH ANTELOPE, also called **BUSH BUCK** and **BUSH GOAT**, names common to a number of species of Antelope, natives chiefly of the southern and western parts of Africa. They have short, straight, or slightly curved horns, situated far back, and often peculiar to

the male sex, with usually a long tuft of hair between them.

BUSHEL (Old Fr. *boissel*, through low Lat. forms from Gr. *pyxis*, a box), a dry measure used for grain, fruit, etc.

BUSHIRE, or **ABUSCHEHR**, a town of Persia, in the province of Fars, situated in the Persian Gulf. The surrounding country is a parched and barren desert, consisting of brown sand or grey clay and rock, unenlivened by any kind of vegetation. It is fortified on the land side by a mud wall with round towers. The houses being mostly built of white stone gives the city, when viewed from a distance, a rather clean and handsome appearance, but on closer inspection the streets are found to be narrow, irregular, ill-paved, and filthy. Bushire carries on a considerable trade, particularly with Calcutta, Bombay, and Java. Its imports are indigo, sugar, rice, spices, steel, cotton and woollen goods, coffee, &c.; and its principal exports are raw silk, opium, Kerman wool, shawls, silk goods, carpets, horses, dried fruits, wine, grain, copper, turquoises, pearls, assafoetida, and gall-nuts. The climate is excessively hot, particularly in the months of June, July, and August. The population is 20,000.

The importance of Bushire has much increased of late years. It is now not only the headquarters of the English naval squadron in the Persian Gulf, and the land terminus of the Indo-European line of telegraph, but it also forms the chief station in these seas of the British Indian Steam Navigation Company, which runs its vessels weekly between Bombay.

BUSHMEN, or **BOSJESMANS**, so named by the British and Dutch colonists of the Cape, are an aboriginal race of South Africa, allied in some respects to the Hottentots, but differing from them in several essential points, and along with these having nothing whatever in common with the Kaffre or the Negro. The area in which they are found in nomadic families may be described as extending from the inner ranges of the mountains of Cape Colony, through the central Kalahari desert to near Lake Ngami, and thence north-westward to the districts about the Ovambo River north of Damara Land, over the most barren portions of the South African deserts, into which they have been pressed by the encroachments of the Kaffre, Hottentots, and Europeans, a few also remaining in the most inaccessible clefts of the Drakenberg range about the sources of the Vaal. They rank with the savages of Australia as the lowest existing type of mankind, human nature being nowhere seen in a more destitute or degraded condition. The Bushman with whom the colonists of the south have come in contact are of very small stature, of a dirty yellow color, and generally repulsive countenance. In type they somewhat resemble the Mongolians; the cheek-bones are large and prominent, the eyes deeply set and crafty in expression, the nose small and depressed; the hair appears in small woolly tufts with spaces between. Among 150 of their number measured by the traveller Barrow, the tallest man was 4 feet 9 inches, the tallest woman 4 feet 4 inches. A hollowed back and protruding stomach, with thick hinder parts and small limbs, are frequent characteristics of their figure, but many of them are well-proportioned, all being active and capable of enduring great privations and fatigue. Northward the Bushmen appear to improve both in general condition and in stature. Their clothing consists of a mantle of skins, termed a *Kardoss*; but they are fond of ornament, and decorate the arms and legs with beads and iron or copper rings, and the women sometimes stain their faces with red color. For dwellings in the plains they have low huts formed of reed mats, or may simply occupy a hole in the earth; in the

mountain districts they make a shelter among the rocks by hanging mats on the windward side. They do not possess cattle, and have no animals of any sort excepting a few half-wild dogs, nor have they the smallest rudiments of agriculture. Living by hunting, they are thoroughly acquainted with the habits and movements of every kind of wild animals following the antelope herds in their migrations. Their weapon is a small bow, strung with twisted sinew, used with arrows, which are neatly made of a reed with a barbed head of bone, sometimes tipped with a triangular piece of iron, and always coated with a gummy poisonous compound, which is variously made in different localities. The chief source of the poison is the milky juice of the *Amaryllis*. A rude implement, called the *graaf stock* or digging-stick by the Boers,—consisting of a sharpened spike of hardwood over which a stone, ground to a circular form and perforated, is passed and secured by a wedge,—is used by the Bushmen in uprooting the succulent tuberous roots of the several species of creeping plants of the desert. These perforated stones have a special interest in indicating the former extension of the race of the Bushmen, since they are found far beyond the area now occupied by their families.

There does not appear to be the least approach to any tribal unity in the wandering groups of the Bushmen; they have no chiefs, bodily strength alone forming a distinction among them. Their language, which exists in several dialects, is not intelligible to the Hottentots, but has in common with it the nasal, snapping, hissing, or grunting sounds, only used more numerously. The Bushmen possess a remarkable faculty which is not known in any other South African nations, that of graphic illustration; the rocks of the mountains of Cape Colony and of the Drakenberg have everywhere examples of Bushman drawings of men, women, children, and animals characteristically sketched. Rings, crosses, and other signs drawn in blue pigment on some of the rocks, and believed to be some centuries old, have given rise to the speculation that these may be remains of a hieroglyphic writing. The Bushmen are not deficient in a certain intelligence, and are valued as servants by the Boers, being much more energetic than the Hottentots; of all the South African races they have the greatest aptitude for music and the dance.

BUSHNELL, HORACE, D.D. (1802–1876), an American theologian, was born at Litchfield, in Connecticut, in April, 1802, and died on the 17th of February, 1876. He studied at Yale College, where he graduated in 1827, after which he was for eleven months editor of the *Journal of Commerce*, and then teacher in a school in Norwich (Connecticut). In 1829 he became tutor in Yale College. His first study was law, but in 1831 he resolved to devote himself to theology, and in 1833 he was chosen pastor of the North Congregational Church, in Hartford (Connecticut), where he remained twenty-four years, employed both as a preacher and as an author. He took an active part in the establishment of the university of California, and was asked to become its president. In 1849 he published *God in Christ*, with an introductory *Dissertation on Language as related to Thought*, in which, it was said, he expressed heretical views as to the Trinity. He was acquitted by seventeen votes to three, but his influence with his church was such that it withdrew from the "Consociation" by which he had been tried, and thenceforward stood alone, a true "congregational" church, whose minister was amenable to no external authority.

BUSHRANGERS, in Australia, originally runaway convicts who had taken to the "bush" and become robbers. In 1814 two officials of Port Dalrymple ab-

sconded, and put themselves at the head of twenty-seven profligate and disorderly persons, including one Michael Howe, who afterward assumed the title of "King of the Rangers." In 1815 martial law was proclaimed in the district by the Lieutenant-Governor, and under Governor Arthur (1824–36), 103 criminals were executed within two years. In 1830 a drastic Bush-ranging Act was passed in New South Wales. Ten men were executed and the Act, which was renewed in 1834, put a stop to organized bush-ranging, though the term still has a meaning in Australia.

BUSIRIS, the name of a mythical king of Egypt not found either on the monuments or in the chronological lists, but mentioned by the later Greek writers and mythologists.

BUSIRIS, the name of an Egyptian town. It is the modern Abusir, and lay, according to Herodotus, in the middle of the Delta. It was supposed to be close to the entrance of the gates of Elysium.

BUSSORAH, BASSORA, BALSORA, or BASRA, a celebrated city of Asia, in the government of Baghdad, on the western banks of the Shatt-el-Arab. The Arabs constitute the principal class; and the Turks, though they are masters of the town, are almost the least numerous.

Bussorah is a great emporium of Indian commerce. Six or eight English ships arrive in the course of a year from India; but the chief part of the traffic is carried on in Arabian bottoms; and the merchants of Muscat possess some of the finest vessels that navigate the Indian seas. From various parts of Hindustan Bussorah receives silk, muslin, linen, white and blue cloths for the clothing of the Arabians, gold and silver stuffs, various metals, sandalwood, and indigo; pearls from Bahrein, and coffee from Mocha; shawls, fruit and the precious metals from Persia; spices from Java; and European commodities, which are scarce and dear, from different parts.

The situation of the town is unhealthy, owing to the inundations of the river, from which noxious exhalations arise. The adjoining country is fertile, producing, besides rice, wheat, barley, and dates of different species, a variety of fruits and vegetables, such as apricots, apples, figs, olives, pomegranates, and grapes; and cabbages, broccoli, lettuce, onions, pease, beans, and truffles, in vast quantities. There are whole fields of roses, which the inhabitants cultivate for the purpose of making attar. The liquorice plant also grows amidst the palm groves on the borders of the river.

BUSTARD, the largest British land-fowl, which formerly frequented the champaign parts of Great Britain from East Lothian to Dorsetshire, but of which the native race is now extirpated. The last examples of the native race were probably two killed in 1838 near Swaffham, in Norfolk, a district in which for some years previously a few hen-birds of the species, the remnant of a plentiful stock, had maintained their existence, though no cock-bird had latterly been known to bear them company.

An adult male will measure nearly four feet from the tip of the bill to the end of the tail, and its wings have an expanse of eight feet or more,—its weight varying (possibly through age) from 22 to 32 pounds. The food of the Bustard consists of almost any of the plants natural to the open country it loves, but in winter it will readily forage on those which are grown by man, and especially coleseed and other green crops. To this vegetable diet much animal matter is added when occasion offers, and from an earth-worm to a field-mouse little that lives and moves seems to come amiss to its appetite.

The distribution of the Bustards is confined to the Old

World — the bird so called in the Fur-Countries of North America, and thus giving its name to a lake, river, and cape, being the Canada Goose.

BUSTO ARSIZIO, a town of Italy, in the province of Milan and district of Gillarate. Cotton is manufactured in the town, and the vine is cultivated in the neighborhood. Population in 1889, 15,000.

BUTADES, a Greek modeller in clay, whom fable describes as the first who modelled the human face in that material. The story is that his daughter, smitten with love for a youth at Corinth where they lived, drew upon the wall the outline of his shadow, and that upon this outline her father modelled a face of the youth in clay, and baked the model along with the clay tiles which it was his trade to make. This model was preserved in Corinth till Mummius sacked that town. This incident led Butades to ornament the ends of roof-tiles with human faces, a practice which is attested by numerous existing examples. He was a native of Sicyon, and probably lived about 600 B.C., at which date Corinth seems to have been a flourishing centre of working in clay.

BUTCHER-BIRD, a name frequently given to the Shrike family of Birds and particularly to the Great Grey Shrike. See **SHRIKE**.

BUTE, COUNTY OF, is composed of three groups of islands which lie in the Firth of Clyde, betwixt the coasts of Ayrshire on the east, and Argyllshire on the north and west. The area of the county is about 225 square miles. In consequence of their acknowledged salubrity of climate, beauty and sublimity of scenery, and scientific and historic interest, the chief islands of Buteshire have for years attracted increasing numbers of tourists, artists, and men of science from all parts of the world. Buteshire, with the exception of some half-dozen small estates, is in the hands of four great proprietors. Arran, Holy Isle, and Pladda belong to the duke of Hamilton, and Bute and Inchmarnoch to the noble marquis who derives his title from the former. The census of 1889 gives the resident population of Buteshire at 18,000.

The island of Bute and Inchmarnoch, excepting the small estates of Ascog and Ardbeg, the burgh lands, and one or two trifling holdings adjoining the town, belong to the marquis of Bute, whose favorite seat, Mount Stuart, is four miles from Rothesay on the eastern shore. The house, for which a much better site, commanding a view all round the island, might have been found, was begun in 1719 by the second earl, and finished after his death, in 1723, by Lady Bute, a daughter of the first duke of Argyll. It is a plain unpretentious mansion of moderate dimensions, recently much improved internally by the present marquis.

Touching the origin of the name of Bute, there is considerable doubt. It has been written Both, Bote, Boot, and Botis, and may thus be derived from "Both," which is the Irish for "a cell," St. Brendan, an Irish abbot, having, it is said, caused a cell to be erected in the island in the 6th century; or it may have been derived from the old British words "Ey Budh," or the Gaelic words "Ey Bhiod," signifying the "island of corn," or "island of food," from its fertility as compared with the neighboring islands and Highland districts.

Great improvements have been recently made. The renovation of the grand old castle, and the formation of the esplanades of Rothesay, — together with the erection of an aquarium, and of an iron pier, where the accommodation was wanted, at the entrance to the bay, has tended, with other appreciated advantages, to give the island and shores of Bute a higher place than ever among the attractions of the Clyde.

BUTE, JOHN STUART, THIRD EARL OF (1713-1792).

for a brief time prime minister of England, was born in 1713, and was educated at Eton. Horace Walpole, who was one of his contemporaries there, tells us that Bute "studied simples in the hedges about Twickenham." For many years he resided in the remote island of Bute, where he appears to have diligently studied mathematics, mechanics, and natural science. He married the daughter of Mr. and the celebrated Lady Mary Wortley Montagu, an alliance which subsequently brought the large Wortley estates into his family. A mere accident introduced him at court; a shower of rain interrupted a cricket match at Chiseldon, and led to his services being required by the Prince of Wales. He received a bedchamber appointment in the household of the prince. Prince Frederick died, however, next year, and Lord Bute lived in retirement. On the formation of a separate household for the princess and the young princes, he received the appointment of groom of the stole, somewhat to the dissatisfaction of the old king, George II., who gave him the gold key of office in an ungracious way.

In 1760 George II. died, and the young king proceeded to put in practice the teachings he had received. This marked an important era in constitutional history. Then began the era of the "king's friends;" the royal will was to be supreme; the ministers were simply to act ministerially, giving expression to and carrying out the sovereign's pleasure. It is manifest that this doctrine weakened the responsibility of ministers and the authority of parliament, and invited dangers in the direction both of absolutism and of anarchy. Bute, however, was prepared to carry out a scheme very like Strafford's "Thorough" with zeal and energy. The day after the accession Bute was made a privy councillor. A little later he was made secretary of state. Afterwards he was made Knight of the Garter. The king told the ministers, "Lord Bute is my very good friend;" and the royal will was expressed through him. The extraordinary spectacle was witnessed, on the meeting of parliament, of a man with no political connection, who had never been in the cabinet, and who had never served in any ministerial office, being practically prime minister. What he was in reality he soon became in name.

As premier, Bute showed considerable ability. Lord Mansfield said he never knew any man come to business so late who did it so well, and he proved an extremely good speaker. He also gave considerable patronage to literature and art. He had several distinct points of policy. He wished to close the era of war and make peace with France. He wished to sever the political connection between England and Hanover. He wished to humble the dominant Whig families, and to make the king supreme. In all these objects he was to a considerable extent successful.

After being premier for eleven months, to the astonishment of all, he suddenly resigned. He was unable to face the black tide of personal unpopularity which set in so heavily against him. Wilkes's publication of the *North Briton* had both expressed and intensified his unpopularity. He was in danger of being impeached; he was in danger of being torn in pieces by the mob. But although he resigned office, his influence with the king was hardly impaired. It was the king's custom, at least for some time, to write a minute daily journal of events and transmit it to Lord Bute. Both Grenville who succeeded him, and Rockingham who succeeded Grenville, regarded him with the utmost jealousy.

The influence of Lord Bute over the king was great for a time, but it has been much exaggerated. After a few years it seems to have declined altogether. Both

the king and Lord Bute soon disclaimed its existence, and there is no lack of corroboratory evidence. But it was impossible to eradicate the notion that there was a back-stairs influence personified in Lord Bute. He was denounced in popular addresses before the king himself as a betrayer of the constitution, and mobs regularly broke his windows. Wilkes reviled him; Junius thundered against him.

Lord Bute had purchased an estate at Luton in Bedfordshire, where Adams, the Scottish architect, had built him a magnificent residence. Here he formed an immense library, a superb collection of astronomical and philosophical instruments, and an admirable gallery of pictures, which are preserved in a large house appropriated to them in Warwick Square, London. On the summit of a plain Tuscan pillar in the grounds is an inscription in honor of his great friend and benefactress the Princess Dowager. He took great delight in architecture, and among other edifices built himself a marine villa on the edge of the cliff, in Hampshire, overlooking the Needles and the Isle of Wight. He is said to have been an admirable tutor and father to his children, and to have taken a greater pleasure in simple, natural delights than he could have found in courts. His death was occasioned through that intense love of natural science which had followed him through life. Seeing a new plant on the cliff he climbed towards it, and received a severe fall, which brought on an illness of which he died.

BUTLER, ALBAN (1710-1773), a hagiologist, was born in Northampton in 1710. After completing his education at the Roman Catholic college at Douay, he was appointed professor of philosophy, and afterwards professor of divinity. In 1745 he travelled through France and Italy in company with the earl of Shrewsbury and some other gentlemen. On his return he was sent as a member of a mission to Staffordshire, but was soon afterwards appointed chaplain to the duke of Norfolk, whose nephew he educated and accompanied on a Continental tour. After returning to England he was made president of the English college at St. Omer's, where he remained till his death in 1773. His great work, the *Lives of Saints*, was first published in 5 vols. 4to, 1745, and has passed through many editions. It exhibits great industry and research, with considerable power of expression, and is in all respects the best work of its kind in English literature.

BUTLER, CHARLES (1750-1832), nephew of the preceding, a miscellaneous writer, was born at London in 1750. He was educated at Douay, and in 1775 entered at Lincoln's Inn. He had considerable practice as a conveyancer, and after the passing of the Act Geo. III. c. 32 was called to the bar in 1791. In 1832 he received the silk gown, and was made a bencher of Lincoln's Inn. He died on the 2d June in the same year. His literary activity was enormous, and the number of his published works is very great. The most important of them are the *Reminiscences*, 1821-1827; *Horæ Biblicæ*, 1797, which has passed through several editions; *Horæ Juridicæ Subsecivæ*, 1804; *Book of the Roman Catholic Church*, which was directed against Southey and excited some controversy; lives of Erasmus, Grotius, and some others.

BUTLER, JAMES, DUKE OF ORMOND. See ORMOND.

BUTLER, JOSEPH, Bishop of Durham, one of the most distinguished writers on theology and ethics, and perhaps the man of greatest intellectual power in the English church during the 18th century, was born at Wantage, in Berkshire, on the 18th May 1692. The family belonged to the Presbyterian community, and it was their wish that young Butler should be educated for

the ministry in that church. The boy was placed under the care of the Rev. Philip Barton, master of the grammar school at Wantage, and remained there for some years. He was then sent to a dissenting academy at Gloucester, which was afterward removed to Tewkesbury. The head-master was Mr. Samuel Jones, a man of considerable abilities, several of whose pupils afterwards attained to eminence in the church. Butler's fellow-student and most intimate friend was Secker, who afterwards became archbishop of Canterbury.

While at this academy two important events occurred in Butler's life. He gradually became dissatisfied with the principles of Presbyterianism, and after much deliberation resolved to join the Church of England. In this resolution his father reluctantly acquiesced. About the same time he began to study with care Clarke's celebrated *Demonstration of the Being and Attributes of God*, which had been published a few years previously. With great modesty and secrecy Butler, who was then in his twenty-second year, wrote to the author propounding certain difficulties with regard to the proofs of the unity and omnipresence of the Divine Being. Clarke answered his unknown opponent with a gravity and care that showed his high opinion of the metaphysical acuteness displayed in the objections, and published the correspondence in later editions of the *Demonstration*. Butler acknowledged that Clarke's reply satisfied him on one of the points, and he subsequently gave his adhesion to the other.

In March 1714 he was entered at Oriel College, Oxford. Little is known of his life at the university; his most attached friend was Edward Talbot, son of Dr. William Talbot, afterwards Bishop of Durham. In 1718, on the recommendation of Talbot and Clarke, he was nominated preacher at the Chapel of the Rolls, and continued there till 1726. In 1721 he had been appointed by Bishop Talbot to the living of Houghton, and in 1725 his kind patron presented him to the wealthy rectory of Stanhope. In the following year he resigned his preachiership at the Rolls, and published the first edition of the *Sermons*.

In 1736 appeared the *Analogy*, which at once took its place as the completest answer to the general deistical reasoners of the times, as the best defense of revealed religion.

In 1736 Queen Caroline died; on her deathbed she recommended Butler to the favor of her husband. George, however, had not his consort's partiality for metaphysics, and seemed to think his obligation sufficiently discharged by appointing Butler in 1738 to the bishopric of Bristol, the poorest see in the kingdom. The severe but dignified letter in which Butler signified his acceptance of the preferment, must have shown him that the slight was felt and resented.

Butler was never married. His personal appearance has been sketched in a few lines by Hutchinson:—"He was of a most reverend aspect; his face thin and pale; but there was a divine placidness which inspired veneration, and expressed the most benevolent mind. His white hair hung gracefully on his shoulders, and his whole figure was patriarchal."

Underneath the meagre facts of his life, eked out by the few letters left by him or anecdotes told about him, there can be traced the outlines of a great but somewhat severe spirit. He was an earnest and deep-thinking Christian, melancholy by temperament, and grieved by what seemed to him the hopelessly irreligious condition of his age. His intellect was profound and comprehensive, thoroughly qualified to grapple with the deepest problems of metaphysics, but by natural preference occupying itself mainly with the practical and moral. Man's conduct in life, not his theory of the universe,

was what interested him. His style has frequently been blamed for its obscurity and difficulty. These qualities, however, belong not so much to the form as to the matter of his works. The arguments are invariably compressed, and can never be taken individually. All are parts of one organic whole. Constant attention is thus required in order to grasp the relations of each isolated piece of reasoning. Above all, however, the special obscurity of the *Analogy* results from the difficulty of keeping constantly in mind the exact issue involved. Butler himself resolutely restricts his arguments within the narrow limits prescribed for it, but it is difficult for any ordinary reader to keep this constantly in mind.

His great work, *The Analogy of Religion, Natural and Revealed, to the Course and Constitution of Nature*, cannot be adequately appreciated unless taken in connection with the circumstances of the period at which it appeared. It was intended as a defence against the great tide of deistical speculation, which in the apprehension of good men seemed likely to sweep away the restraints of religion, and make way for a general reign of licence. Deism, as a fact in English thought, takes its rise mainly from Locke, though traces of it are not wanting in Herbert of Cherbury. Whether or not the *Essay on the Human Understanding* should be held responsible for its results is a disputed question; but there can be no doubt that from the positions there laid down the general principles of the deists were drawn. Knowledge, in the strict sense of the word, had been restricted by Locke to the perceptions of the relations among ideas; reason was defined as the faculty which compared and compounded such ideas; and though with regard to God, faith was still admitted, the only part of the divine nature withdrawn from the province of knowledge was the inscrutable essence, which was equally unknown in the case of all real beings. The whole course of nature, including man's moral powers, was therefore subjected to reason; life must be regulated by reason. If, therefore, religion were to enter as a factor into the conduct of man, it must exhibit to reason the title deeds of its existence; Christianity must be reasonable. But with such a view of knowledge it was easy for the deists to make a successful attack upon at least one portion of the Christian scheme. A mystery by its very definition involved elements not capable of being represented in clear ideas; it was therefore unreasonable, and must be absolutely rejected. *Christianity not Mystical* is the title of Toland's most famous work.

Butler is a typical instance of the English philosophical mind. He will admit no speculative theory of things. To him the universe is no realization of intelligence, which is to be deciphered by human thought; it is a constitution or system, made up of individual facts, through which we thread our way slowly and inductively. Complete knowledge is impossible; nay, what we call knowledge of any part of the system is inherently imperfect. "We cannot have a thorough knowledge of any part without knowing the whole." So far as experience goes, "to us probability is the very guide of life." Reason is certainly to be accepted; it is our natural light, and the only faculty whereby we can judge of things. But it gives no completed system of knowledge, and in matters of fact affords only probable conclusions. In this emphatic declaration, that knowledge of the course of nature is merely probable, Butler is at one with Hume, and some of his expressions are exactly paralleled in the writings of the great sceptic, who was a most diligent student of the bishop's works. What can come nearer Hume's celebrated maxim, — "Anything may be the cause of anything else," than Butler's conclusion, "so that any

one thing whatever may, for aught we know to the contrary, be a necessary condition to any other?"

Although Butler's work is peculiarly one of those which ought not to be exhibited in outline, for its strength lies in the organic completeness with which the details are wrought into the whole argument, yet a summary of his results will throw more light on the method than any description can.

Keeping clearly in view his premises — the existence of God and the limited nature of knowledge, — Butler begins by inquiring into the fundamental prerequisite of all natural religion — the immortality of the soul. Evidently the stress of the whole question is here. Were man not immortal, religion would be of little value. Now, Butler does not attempt to prove the truth of the doctrine; that proof comes from another quarter. The only questions he asks are — Does experience forbid us to admit immortality as a possibility? Does experience furnish any probable reason for inferring that immortality is a fact? To the first of these a negative, to the second an affirmative answer is returned. All the analogies of our life here lead us to conclude that we shall continue to live after death; and neither from experience nor from the reason of the thing can any argument against the possibility of this be drawn. Immortality, then, is not unreasonable; it is probable. If, he continues, we are to live after death, it is of importance for us to consider on what our future state may depend; for we may be either happy or miserable. Now, whatever speculation may say as to God's purpose being necessarily universal benevolence, experience plainly shows us that our present happiness and misery depend upon our conduct, and are not distributed indiscriminately. Therefore no argument can be brought from experience against the possibility of our future happiness and misery likewise depending upon conduct. The whole analogy of nature is in favor of such a dispensation; it is therefore reasonable or probable.

It would be unfair to Butler's argument to demand from it answers to problems which had not in his time arisen, and to which, even if they had then existed, the plan of his work would not have extended. Yet it is at least important to ask how far, and in what sense, the *Analogy* can be regarded as a positive and valuable contribution to theology. What that work has done is to prove to the consistent deist that no objections can be drawn from reason or experience against natural or revealed religion, and consequently, that the things objected to are not incredible and may be proved by external evidence.

Throughout the whole of the *Analogy*, it is manifest that the interest which lay closest to Butler's heart was the ethical. His whole cast of thinking was practical. The moral nature of man, his conduct in life, is that on account of which alone an inquiry into religion is of importance. The systematic account of this moral nature is to be found in the famous *Sermons preached at the Chapel of the Rolls*, especially in the first three. In these sermons Butler has made substantial contributions to ethical science, and it may be said with confidence, that in their own department nothing superior in value appeared during the long interval between Aristotle and Kant. To both of these great thinkers he has certain analogies. He resembles the first in his method of investigating the end which human nature is intended to realize; he reminds of the other by the consistency with which he upholds the absolute supremacy of moral law.

In his ethics, as in his theology, Butler had constantly in view a certain class of adversaries, consisting partly of the philosophic few, partly of the fashionably-educated many, who all participated in one common

mode of thinking. The key-note of this tendency had been struck by Hobbes, in whose philosophy man was regarded as a mere sensitive machine, moved solely by pleasures and pains. Human nature had come to be looked upon as essentially selfish; disinterested actions were sneered at as impossibilities by the many, and were explained away into modifications of selfishness by the scientific moralists. Cudworth and Clarke, it is true, had tried to place ethics on a nobler footing, but their speculations had been of the abstract kind, which was always distasteful to Butler. They were not practical enough, were not sufficiently "applicable to the several particular relations and circumstances of life." He desired to base ethical law not on abstract theory, but on the actual facts of human nature.

The threefold division into passions and affections, self-love and benevolence, and conscience, is Butler's celebrated analysis of human nature. In the handling of the several parts he shows remarkable psychological power, and succeeds in obviating many of the difficulties drawn from the principles of the selfish theory of ethics. He is especially concerned to show that self-love and benevolence are in no sense opposed to one another. This he does by examining the function of self-love and the relation it bears to the passions. The special desires or affections are the expressions of wants in our nature which are to be satisfied by the possession of definite things. The objects of the desires are therefore the things naturally adapted to satisfy them, and not the pleasure which is the accompaniment of satisfaction. The passions tend towards their objects as ultimate ends, and are consequently unselfish or disinterested. On the other hand, self-love aims at procuring happiness for the individual; and happiness means the general satisfaction of desires. Self-love is therefore distinct from the particular desires, but is completely dependent on them. Its end is the attainment of pleasure, and it desires external things only as means towards this. In itself it has no actual content; it only directs the particular passions towards their ends, and frequently, by fixing its attention too much upon its own goal, personal happiness, is in danger of defeating its own endeavors. Self-love is therefore distinct from and in no way opposed to the particular affections which are themselves disinterested. Just as little opposition is there between self-love and disinterested benevolence. An affection which finds its gratification in some external object and rests in it as a final end, is in no sense opposed to self-love. This is one of the most important parts of Butler's ethical psychology.

Up to this point he has merely analyzed the various parts of human nature, and has pointed out the course of action corresponding to each. But in a system or organism the parts do not exist for themselves but for the whole. The idea of human nature is not completely expressed by saying it consists of reason and the several passions. "Whoever thinks it worth while to consider this matter thoroughly should begin by stating to himself exactly the idea of a system, economy, or constitution of any particular nature; and he will, I suppose, find that it is one or a whole, made up of several parts, but yet that the several parts, even considered as a whole, do not complete the idea, unless in the notion of a whole you include the relations and respects which these parts have to each other." This fruitful conception of man's ethical nature as an organic unity Butler owes directly to Shaftesbury and indirectly to Aristotle; it is the strength and clearness with which he has grasped it that gives peculiar value to his system.

BUTLER, SAMUEL (1612-1680), whose name appears to have been spelt Boteler in official documents to the end of his life, was born at Strensham on the Avon

in Worcestershire. He was baptized on the 8th of February 1612. The author of *Hudibras* was apparently educated at the college (or cathedral) school, Worcester, and the house in which he was born was pulled down (being considered incapable of repair) about 1873. Hardly any other particulars of his youth are recorded, and his later education (if he received any) is equally uncertain. He has been loosely asserted (as is the case with many other distinguished persons of his century) to have studied at both Cambridge and Oxford, but the balance of testimony seems to be against his having belonged to either university. The time between the completion of his education (*circa* 1630) and the Restoration, a period of fully thirty years, appears to have been spent by him in three different households, with Mr. Jefferies of Earl's Croome in Worcestershire, with the countess of Kent at Wrest in Bedfordshire, and with Sir Samuel Luke at Woodend or Cople Hoo in the same county.

We are nowhere informed, nor is it at all clear, in what capacity Butler served Sir Samuel Luke, or how one who was not only in temper and sympathies, but also from early associations, a decided royalist, came to reside in the house of a noted Puritan and Parliament man. In the family of this "valiant Mameluke," who, whether he was or was not the original of *Hudibras*, was certainly a rigid Presbyterian, "a colonel in the army of the Parliament, scoutmaster general for Bedfordshire and governor of Newport Pagnell," Butler must have had the most abundant opportunities of studying from the life those who were to be the victims of his great future satire. But we know not how long he held his situation (whatever it was) under the knight of Cople, and we hear nothing positive of him till the Restoration, immediately after which he was appointed secretary to Lord Carbery (then President of Wales) and steward of Ludlow Castle. Contradictory documents exist respecting his tenure of the latter office, one speaking of him as "late steward" in January 1662, the other (a protection against arrest) addressed to him as steward in September 1667. About this time he married a Mrs. Herbert, according to Aubrey a widow with a good jointure, on whose means he lived comfortably. Aubrey knew him well and could hardly be wrong on such a point, especially as his testimony as to Butler's living in comparative comfort is confirmed by another authority to be afterwards mentioned. It should, however, be observed that other accounts state that Mrs. Herbert's fortune was lost through bad securities. Late in 1662 the first part of *Hudibras* was published. On the 26th of December Pepys bought it, and though neither then nor afterwards could he see the wit of it, he repeatedly testifies to its extraordinary popularity. This latter compliment (which it will be remembered was also paid to Butler's spiritual ancestor Cervantes) determined the poet to bring out the second part, which was licensed on November 7, 1663, and which if possible exceeded the first in popularity. From this time till 1678, the date of the publication of the third part, we hear nothing certain and hardly anything at all of Butler. He appears at some period to have visited France. He is said to have received a gift of £300 from Charles II., and to have been secretary to Buckingham when the latter was Chancellor of the University of Cambridge. Most of his biographers, in their eagerness to prove the ill-treatment which Butler is supposed to have received, disbelieve both of these stories, perhaps without sufficient reason. It must be allowed that it is scarcely a valid argument that Butler, if he had been secretary to Buckingham, would not have spoken so severely of that nobleman in his *Characters (Remains, 1754)*, when it is remembered that he satirized Sir Samuel Luke, to whom

he held nearly the same relation, with certainly equal virulence. Two years after the publication of the third part he died (September 25, 1680), and was buried by his friend Mr. William Longueville in the churchyard of St. Paul's, Covent Garden. He was, we are told, "of a leonine-colored hair, sanguine, choleric, middle-sized, strong." Portraits exist at Oxford and elsewhere which represent him as somewhat hard-featured. Two personal anecdotes, and perhaps two only, are recorded of him. One is the well-known story which tells how Wycherly labored hard to secure for the neglected poet the patronage of Buckingham, how an interview was at last arranged, from which the duke was, alas! called off by the passage of "a brace of ladies," and how the opportunity was lost. The other bears suspicious marks of having been made up as setting for a witticism of Lord Dorset's. Dorset, it seems, was anxious to know the author of *Hudibras*, and prevailed on a common friend to bring him to a tavern. At the first bottle Butler was quiet and reserved, at the second full of wit and spirits, at the third dull and stupid,—upon which Dorset's comment was that Butler was "like a nine-pin, little at both ends, but great in the middle." Of these stories it may be said, as of most such, that they may be true and cannot be proved to be false.

Butler's published works during his life consisted of the three parts of *Hudibras* (the second and third were republished together in 1674, with notes by the author); of an *Ode on Duval* (the famous highwayman); and of two pamphlets attributed to Prynne. In 1715 three volumes, entitled *Posthumous Works of Mr. S. Butler*, were published with great success. Their contents, however, are all spurious except one or two short pieces. The poet's papers remained in the hands of his friend Mr. Longueville, and were not published till 1759, when Mr. Thyer, librarian at Manchester, edited two volumes of verse and prose under the title of *Genuine Remains*. The most remarkable of the prose writings are characters of the kind popular in the 17th century, and partaking largely of the faults usual in such pieces. To this some additional fragments were added in 1822; a fragment of a tragedy on Nero is also spoken of. In 1726 Hogarth executed some illustrations to *Hudibras*, which are among his earliest but not, perhaps, happiest productions. In 1744 Dr. Zachary Grey published an edition of *Hudibras*, which has been repeatedly reprinted, and has formed (with that of Nash in 1793) the basis of all subsequent editions. It contains an enormous mass of notes, displaying little critical or literary power, but abounding in curious information. A worthy edition is still to be sought for; but that of the late Mr. R. Bell is convenient, and supplies much information, which is generally accurate. Mr. Bohn's (of *Hudibras* only) is also useful. Butler's lesser works would of themselves fairly sustain, though perhaps they would hardly create, a great reputation. Abundance of happy thought, of ingenious expression, and of vigorous verse, may be found in the *Miscellaneous Thoughts*, the *Ode on Duval*, and the *Satires on the Royal Society (The Elephant in the Moon)* and on *Critics*. But the splendor of *Hudibras* has somewhat paled their fire.

BUTLER, WILLIAM ARCHER (1814--1848), a brilliant writer on theology and the history of philosophy, was born at Annerville, near Clonmel, probably in 1814. His father was a Protestant, his mother a Roman Catholic, and he was brought up in the Romish faith. At the age of nine he was sent to Clonmel school, where he distinguished himself not so much by rigid attention to his class work as by general brilliancy and power. Even when a boy he was strongly drawn towards the imaginative and poetical, and some of his early verses show an astonishing precocity. After leaving Clonmel school he

entered Trinity College, Dublin. Two years before he had joined the Protestant Church. His career at college was remarkably brilliant. In 1842 he was promoted to the rectory of Raymoghly. His lectures and his sermons were equally admired for their strength of thought and richly imaginative style. In 1845 appeared in the *Irish Ecclesiastical Journal* his *Letters on Development*, written under a great press of business, but in every way worthy of the author, and the best reply made to the famous essay of Newman which had called them forth. Butler's life was but short. He caught cold when returning one day from public service; the cold terminated in fever, which proved fatal in a few days. He died on the 5th July, 1848.

BUTLER, the capital of Butler county, Pa., is situated on Conequenessing creek, twenty-six miles (fifty by rail) north of Pittsburg, with which it has railroad communication. It has large manufactures of bottles and plate glass, woolens, sash, doors and blinds, and carriages. There are one national and two other banks, three newspaper offices, seven churches, and a graded school. The town is situated in a mineral and natural-gas producing country, and has a population of 8,715.

BUTO, an Egyptian goddess, called in the language *Uat* or *Uatiu*, the eponymous goddess of the town Buto in Northern Egypt, supposed to be modern Kum el Aman and Kum el gir, on the western banks of the Damietta branch of the Nile. The goddess herself personified Lower Egypt.

BUTRINTO, a fortified town of European Turkey on the coast of Albania, in the sandjak of Delvino, directly opposite the island of Corfu, and situated at the mouth of a stream which connects the Lake of Vatzindro with the bay. Population, 2,000.

BUTTE CITY, the capital of Silver Bow county, Montana, is situated about sixty-five miles south by west of Helena, the capital of the State. It is the center of a rich mining country and produces large quantities of the precious metals. Butte City contains one national bank, three newspaper offices, furnaces, stores, and a population of 21,000. Its increase within the last few years has been very rapid, as it had but 3,360 people in 1880. Since that time the introduction of mining machinery and of facilities for reducing refractory ores has led to the influx of a large number of miners, while the mercantile business of the city has grown in proportion.

BUTTER, is the fatty portion of the milk of mammalian animals. The milk of all mammals contains such fatty constituents, and butter from the milk of goats, sheep, and other animals has been and may be used; but that yielded by cow's milk is the most savory, and it alone really constitutes the butter of commerce. The milk of the various breeds of cattle varies widely in the proportion of fatty matter it contains; its richness in this respect being greatly influenced by season, nature of food, state of the animals' health, and other considerations. While the proportion of cream to milk in the case of most breeds ranges from one-twentieth to one-tenth, in the case of the celebrated Alderney cattle it amounts to as much as from three to four-tenths. Dr. Parkes (*Practical Hygiene*) gives the following as the average composition of unskimmed milk having a sp. gr. of 1.030:—

Casein	4.0
Fat	3.7
Lactin (Sugar of Milk)	5.0
Salts	0.6
Total Solids	13.3
Water	86.7

On a low average each pint of milk ought to yield a full half-ounce of butter. The fat or butter is dis-

seminated through freshly-drawn milk in minute, clear globules, each of which is enclosed in a thin membranous sac or bag; and being specifically lighter than the mass of the fluid, the globules gradually rise to the surface, bringing mixed with them a proportion of milky matter, and form cream. Usually the cream is skimmed off the surface of the milk for making butter, but by some the churning is performed on the milk itself without waiting for the separation of the cream. The operation of churning causes the rupture of the oil sacs, and by the coalescence of the fat so liberated butter is formed. Details regarding churning and the preparation of butter generally will be found under DAIRY.

Fresh or unsalted butter of good quality should present a rich straw-yellow color. At ordinary temperatures it has a firm uniform consistency, while it is soft enough to cut and spread easily under the knife without breaking or crumbling. It should possess a faint sweet odor, and a bland, soft, delicate flavor, melting in the mouth without any indication of grittiness. Pure butter is a complex chemical compound, consisting in large parts of fats or glycerides of the non-volatile acids, palmitic acid, and butyroleic acid, with occasionally stearic acid. With these there occur small proportions of glycerides of the volatile acids, butyric, capronic, caprylic, and caprinic acid, to which the butter owes its distinguishing flavor and characteristics, as it has the non-volatile acids in common with other fats, though in different proportions. Butter when unadulterated and prepared with ordinary care should contain at least 85 per cent. of pure fat, the remainder consisting of casein, water, and salt. The casein is derived from milk, which is never perfectly washed out, but in butter of good quality this ought not to amount to more than from 3 to 5 per cent. Water may be present to the extent of from 5 to 10 per cent. without the butter being subject to a charge of adulteration; and a small proportion of salt is commonly worked into the butter in its preparation, but in what is sold as fresh or sweet this should only be from $\frac{1}{2}$ to 2 per cent. of the whole weight.

Under the name of butterine an artificial substitute for butter has been introduced in America, and imported into England from there. It is the same as the artificial butter or "margarine-mouries," which has been for some years manufactured in Paris according to a method made public by the eminent chemist M. Mège-Mouries. Having surmised that the formation of butter contained in milk was due to the absorption of fat contained in the animal tissues, M. Mouries was led to experiment on the splitting up of animal fat. The process he ultimately adopted consisted in heating finely-minced beef suet with water, carbonate of potash, and fresh sheep's stomachs cut up into small fragments. The mixture he raised to a temperature of 45° C. (113° Fahr.) The influence of the pepsine of the sheep's stomach with the heat separated the fat from the cellular tissue; he removed the fatty matter, and submitted it when cool to powerful hydraulic pressure, separating it into stearin and oleomargarin, which last alone he used for butter-making. Of this fat about the proportions of 10 lb with 4 pints of milk and 3 pints of water were placed in a churn, to which a small quantity of annatto was added for coloring, and the whole matter churned together. The compound so obtained when well washed was in general appearance, taste, and consistency like ordinary butter, and when well freed from water it was found to keep a longer time. According to French official reports artificial butter goes much further as food than the genuine article, and forms a perfectly wholesome dietetic material. The Parisian *octroi* officials have recognized the efficiency of the substitute by imposing

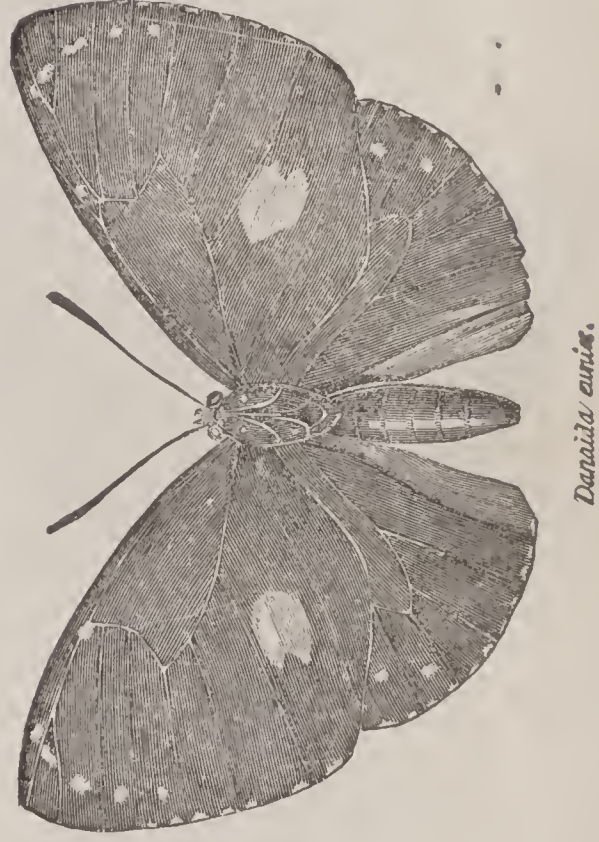
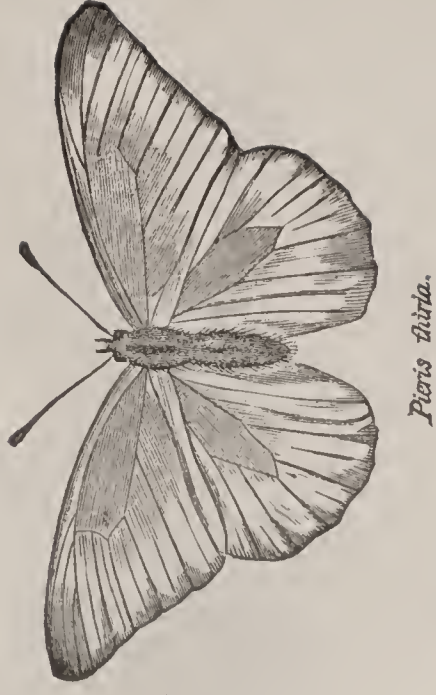
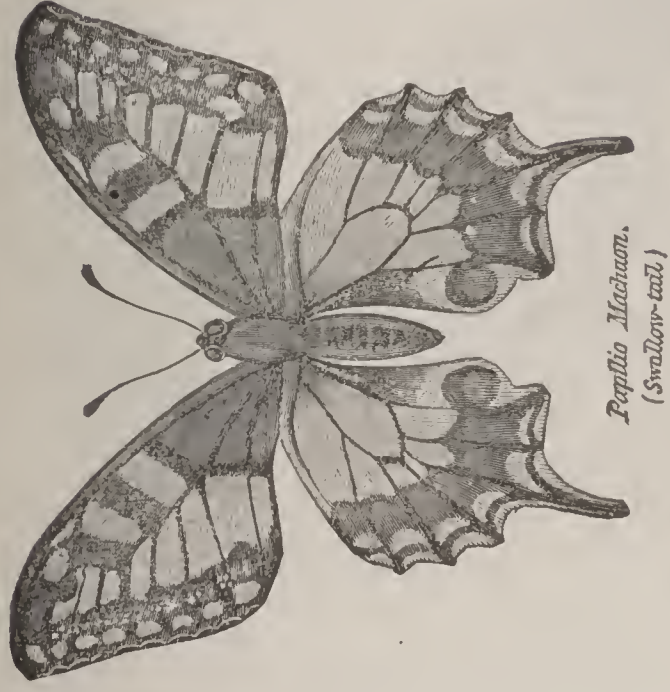
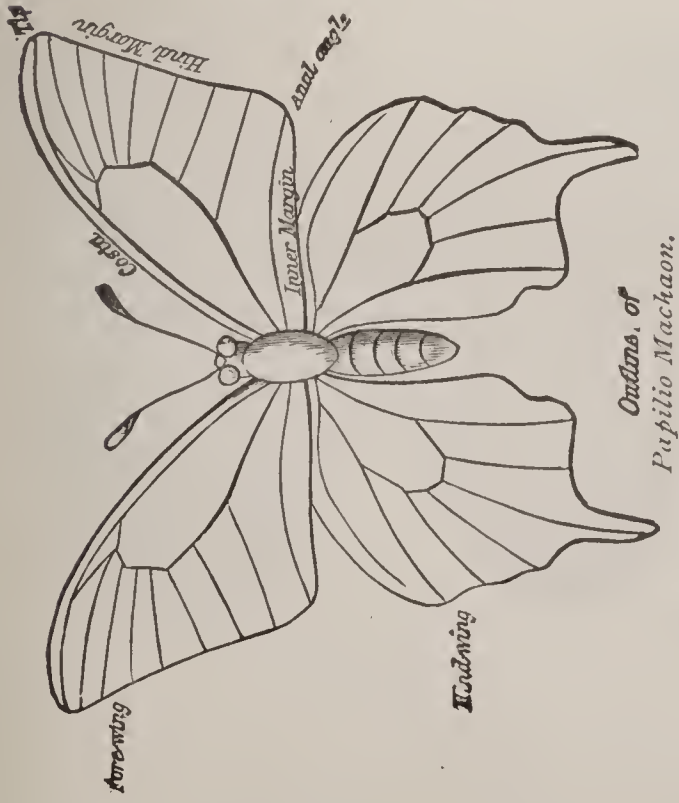
on it the same duties which are chargeable on ordinary butter. The company established for the manufacture in France had in 1888 seven manufactories, in which four hundred men were employed. There can be no doubt that a pure, sweet fat, such as is manufactured by the process of M. Mège-Mouries is a safer and more wholesome article than the unsavory rancid butter which is sold so freely among the poorer classes. See DAIRY.

BUTTERFLIES AND MOTHS, the common English names applied respectively to the two groups of Insects which together form the order *Lepidoptera*, an order characterized by the constant presence, in a greater or less degree, of scales on the wings. The two groups may, as a rule, be readily distinguished from each other, although, so far as our present knowledge goes, there is nothing in the structure or habits of either group which divides it entirely from the other. All butterflies are diurnal in their flight, while moths, with many exceptions, are crepuscular or nocturnal.

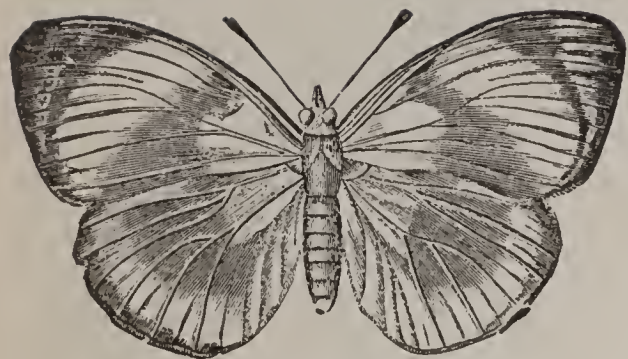
The bodies of butterflies and moths, like those of all other insects, consist of three distinct parts—the head, bearing the organs of sense; the thorax, the organs of locomotion; and the abdomen, the organs of generation. On the head are placed (1) the antennæ, composed of numerous articulations, and supposed to be organs of hearing. They differ greatly in form among the *Lepidoptera*; those of butterflies, however, agreeing generally in having their ends knobbed or clubbed, hence the term *Rhopalocera*, often applied to this group. The antennæ of moths assume a great variety of forms—prismatic, serrate, pectinate, moniliform, and filiform,—and are often beautifully feathered, especially in the males, whose antennæ are usually ampler than those of the females; but in no case are they knobbed, as in the great majority of butterflies. Owing to this variety in the form of their antennæ, moths have been termed *Heterocera*. In butterflies these organs are also straight, and stand out rigidly in front of the head, while in moths they are usually curved and can generally be folded back on the body. (2) The eyes in the *Lepidoptera* consists of two masses of hexagonal facets, placed one on each side of the head, and forming what are known as compound eyes. These contain in some cases no fewer than 16,000 facets each, while in many species a pair of *ocelli*, or simple eyes, are found concealed among the scales and placed between the compound organs. The hairy appearance of the eyes in many of the *Nymphalidæ* is owing to the presence of minute hairs planted at the angles of the numerous facets. Compound eyes are not found among the larvæ of butterflies and moths, but they are in most cases provided with six ocelli on each side of the head. (3) The mouth, the parts of which in insects are considered by comparative anatomists to be typically developed in the masticatory mouth of beetles (*Coleoptera*), assumes in butterflies and moths the suctorial form—the latter being merely a modification of the former; thus the mandibles, labium, and labrum, which are fully developed when the nature of the food renders mastication necessary, are of a rudimentary condition in the *Lepidoptera*, whose chief food is the nectar of flowers, while the maxillæ, on the other hand, are enormously developed; being concave on their inner sides, these by approximating form a tube known as the proboscis or tongue. This when at rest is coiled up into a ball in front of the head, and is partly concealed by the palpi projecting on both sides. In the moths belonging to the family *Bombycidæ*, the organs of the mouth are rudimentary, so that these insects after entering upon the imago state are incapable of feeding.

The thorax bears the organs of locomotion, consisting of three pairs of legs and two pairs of wings. The

BUTTERFLIES.



BUTTERFLIES.



Vanessa callithoe.



Argynnis moula.
(Silver-spotted Fritillary)



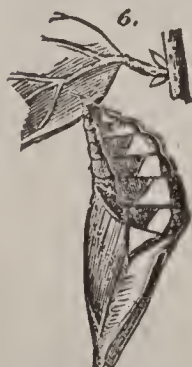
Larva of
Argynnis poplia.
(Silver-washed Fritillary)



Larva of
Nymphalis ilia.



Nymphalis alba.



Chrysalis of
Nymphalis alba.



Nymphalis jaspis.



Morpho actorion.



Nymphalis jaspis.



Parus acodina.

former are covered with hairs and scales, and terminate in hooks modified to suit the habits of the various species. Butterflies use the legs almost entirely for resting, very rarely for walking, and in some groups, as the *Nymphalidæ*, the front pair is rudimentary. The wings consist of a double layer of colorless membrane traversed by numerous nervures, and covered with minute scales implanted in the wing membrane by a short stalk, and placed together like tiles on a roof. The scales vary in form in different species and in different portions of the wings of the same species, while under a high power of the microscope they are seen to be minutely corrugated; and it is to these corrugations acting upon the colorless rays of light, and producing the phenomena of "interference," that many of the loveliest butterflies owe the brilliancy of their wings. The splendor of those organs in the majority of butterflies, and in some moths, is sometimes equally shared by both sexes, but more usually the females are less conspicuously colored than the males. The difference, amounting often to total dissimilarity, Darwin, in accordance with his descent-theory, attributes in great part to the action of sexual selection. "Several males," he says, "may be seen pursuing the same female." The latter he supposes selects the most gaily-colored, and thus the plainer-colored males have been gradually eliminated; but there is no proof whatever that the female shows any such discrimination in selecting a mate, while many known facts seem to point in an opposite direction.

Butterflies and moths undergo complete metamorphosis, that is, after emerging from the egg, and before attaining the full development of the imago, they pass through the larva and pupa stages — the latter being one of total inactivity in so far as the outward manifestations of life are concerned. The eggs vary greatly in shape, and are deposited in a great variety of situations — on the under sides of leaves, on the outside of the cocoon, as in the Vaporer Moth (*Orgyia antiqua*), the female of which is wingless, glued together in rings round the smaller branches of fruit trees, as in *Clisiocampa neustria*, or in the interior of hives, the larvæ afterwards feeding on the wax, as in the Honey-comb Moth (*Galleria cerella*). They thus show a remarkable instinct in depositing their eggs in situations where the larvæ may afterwards obtain their appropriate food, although they themselves can have no knowledge of that food. The caterpillar emerges from the egg usually in a week or ten days. Unlike the perfect insect it is provided with a masticatory mouth. It has three pairs of legs on the anterior segments of its body, corresponding to the six legs of the future imago, besides which it is provided with a variable number of conical feet or *prolegs* placed posteriorly, and which are merely processes of the external covering of the caterpillar. Goossens, a continental naturalist, has recently observed that the number of prolegs in some species differs at different ages, and gives a case in which a caterpillar with originally six prolegs acquired two additional pairs after the third moult. The body cavity is almost entirely occupied with the digestive system, and with that concerned in the production of the silky material used in forming the cocoon. Silk is secreted as a viscous fluid in tubes, which after many convolutions widen into a large reservoir filled with the yellow liquid, narrowing again into a tube extending to the mouth, where it communicates with the outside by means of a conical and jointed papilla known as the *spinneret*. Through this organ the viscous fluid is forced in two exceedingly delicate streams, which coalesce, and on exposure to the atmosphere harden into a single continuous thread. The silky material is not completely formed till the caterpillar reaches

maturity. Caterpillars are either smooth skinned or more or less covered with hairs; in the former case they are a favorite food of insectivorous animals, while in the latter they are almost universally rejected, — recent investigations on this subject going to prove that the hairs on certain species of caterpillars have a power of stinging, somewhat analogous to that possessed by the hairs on the surface of a nettle.

No sooner does the caterpillar emerge from the egg than it begins to eat voraciously, and in a few days has grown so large that a change of skin becomes necessary. The old skin is cast off, and with it the entire internal lining of the alimentary canal, and in the majority of butterflies and moths five such changes take place before the caterpillar has attained its full growth, while the Tiger moth (*Arctia caja*) is said to cast its skin at least ten times. Those moultings do not usually affect the appearance of the caterpillar, except in enlarging it; but in the case of *Samia cecropia*, a species of *Bombycidæ*, the larvæ are said to pass from black to various shades of green and azure-blue in the course of their moultings. The larvæ of the family *Psychidæ* — the larger members of which are found in America and Australia — have the curious habit of constructing cases which they carry about with them, and within which they afterwards undergo transformation. Each larva has but a single case, and when this gets too narrow it splits longitudinally and is enlarged by interposing a new portion between. Moths and butterflies remain in the larval condition for periods varying from three years, as in the Goat Moth (*Cossus ligniperda*), to a few weeks, as in the Cabbage Butterfly (*Pieris brassicæ*), which usually has two broods in the season, while many species whose larvæ leave the egg in autumn, as the Blue Butterfly (*Polyommatus alexis*), remain torpid throughout winter at this stage, and waken up to resume feeding in spring. During this period they increase enormously in weight; thus the larva of the Privet Hawk Moth (*Sphinx ligustri*) which casts its sixth and last skin on the twenty-second day after emerging from the egg, attains its greatest size ten days after, having in the meantime increased to 11,312 times its original weight; while the Great Moth (*Cossus ligniperda*), which remains in the larval condition for three years, has grown in that period 72,000 times heavier. Having attained its full growth the instincts of the caterpillar undergo a change; it ceases to eat and begins to weave a couch or cocoon by which it is more or less enclosed. It then throws off its skin and appears as a pupa or chrysalis incapable of eating or of locomotion, the only apparent sign of life which it manifests being a convulsive twitching when irritated. Examined more closely, however, life is seen to be exerted in a very great intensity in this stage of apparent quiescence. The immense digestive system of the caterpillar dwindles greatly, rudiments of wings begin to show themselves, forming slight prominences on each side of the chrysalis shell, while the organs of the masticatory mouth are being transformed into those of a suctorial. In assuming the pupa condition caterpillars dispose of themselves in a great variety of ways. Many, like the common Cabbage Butterfly, ascend walls and pailings, to which they attach themselves by a silken belt, others, as silkworms, spin around them a solid cocoon of pure silk; while the majority of Sphinx Moths form burrows in the ground, which they line with silk and afterwards varnish to keep out the moisture, — one of these (*Sphinx ligustri*) remaining thus buried from August till June. Those larvæ which feed on the wood of trees, as *Cossus ligniperda*, generally form tough cocoons of chips of wood and of silk within the tunnels which they have bored in the tree, and their pupæ have the power of

forcing themselves along those passages till they reach the bark, where they remain until about to emerge from the egg, when they pierce it also. The cocoon of the Puss Moth (*Cerura vinula*), composed of the same materials as in the preceding instance, is usually placed in a crevice of the bark of a tree, where by exposure to the atmosphere it becomes hard as horn, the moth only making its escape after discharging a liquid by which one end of the cocoon is softened. Hairy caterpillars are usually deficient in silk, and in forming their cocoons mix what they have of this with the hairs of their body. A beautiful net-like cocoon is woven by a South American moth belonging to the *Bombycidae*, which it suspends from the top of an outstanding leaf. "When the caterpillar," says Bates, "begins its work it lets itself down from the tip of the leaf which it has chosen by spinning a thread of silk, the thickness of which slowly increases as it descends. Having given the proper length (about 6 inches) it proceeds to weave its elegant bag, placing itself in the centre and spinning rings of silk at regular intervals, connecting them at the same time by means of cross threads, so that the whole when finished forms a loose web with quadrangular meshes of nearly equal size throughout." The duration of the pupa stage varies from a few weeks to several months; it varies also in the same species according to the season at which it becomes encased; thus the pupa of *Vanessa urticae* at the beginning of summer usually develops in fourteen days, and at midsummer in eight or nine days, while if it becomes encased in autumn it remains a pupa during the winter. By applying heat the process can be accelerated, and it can be equally retarded by refrigeration. When mature the pupa case cracks towards the anterior end, and the butterfly or moth crawls forth with wings which, though at first small and crumpled up, in a few hours attain their full size. The male insect goes in search of the female, and when the latter has deposited her eggs the main object of the life of the imago is attained and both sexes die. Among the *Bombycidae* this occurs in two or three days, owing to the atrophied condition of the organs of the mouth. With butterflies courtship is generally a more prolonged affair, several males pursuing the same female, and breaking each others wings in the conflicts that thus frequently ensue. Butterflies appear in many cases to be gregarious, flying in great flocks. Bates states that in one place in South America he noticed eighty different species flying about in enormous numbers in the sunshine, and these, with few exceptions, were males, the females remaining within the forest shades. Darwin also describes a "butterfly shower," which he observed ten miles off the South American coast, extending as far as the eye could reach; "even by the aid of the telescope," he adds, "it was not possible to see a space free from butterflies." That they are occasionally migratory as well as gregarious is borne out by the observations of Sir J. Emerson Tennett, who witnessed at Ceylon a mighty host of butterflies of a white or pale yellow hue, "apparently miles in breadth and of such prodigious extension as to occupy hours and even days uninterruptedly in their passage."

The food of Lepidopterous insects consists chiefly of the sweet liquids drawn from the nectaries of flowers, which they reach by means of their long proboscis or tongue. Many of the *Sphingidae* are said to do this without settling on the flowers, and one of these, the Humming Bird Hawk Moth of South America (*Macroglossa titan*), in its mode of flight and of poisoning itself before a flower while extracting the juice, bears such close resemblance to certain of the smaller humming birds inhabiting the same district, that Bates often shot it for one

of the latter, and it was only after considerable experience that he learnt to distinguish the bird from the moth when on the wing. Although their food is thus usually the sweetest liquids drawn from loveliest vessels, still some of the most brilliant species seem to prefer more vulgar fare. Thus the showy Purple Emperor (*Apatura iris*) prefers above all things to suck the juices of putrid animal substances, and the surest way to secure specimens of this butterfly is by setting such baits near its haunts. Mr. Wallace states that in Malacca he caught a large and brilliant butterfly which had settled on the dung of some carnivorous animal, where he had also observed it on the previous day, and he adds that it is a habit of many of the finest butterflies to suck up the liquid from muddy spots on the roadside.

Butterflies and moths are widely distributed all over the globe, occurring, however, in greatest variety and abundance in tropical lands. They are found as far north as Spitzbergen, on the Alps to a height of 9000 feet, and to double that height on the Andes. In Britain there are only 66, and in the whole of Europe 390 species of butterflies; while within one hour's walk of Pará in Brazil, Bates found no fewer than 700 species. There are 1910 species of British moths, the majority of which are nocturnal and crepuscular; while in tropical America day-flying moths seem to be most common, and may be seen in company with the sunshine-seeking butterflies. This paucity of nocturnal moths has been attributed to the great number of night-flying or crepuscular insectivorous bats and birds which haunt those regions. Many species both of moths and of butterflies have a very wide distribution; the Painted Lady (*Vanessa cardui*), a common British species, being found in every quarter of the globe; and the finest butterfly, the Swallow Tail (*Papilio machaon*), occurring throughout Europe, Asia as far as the Himalayas, and South Africa. Other species are extremely local, as the Scotch Argus (*Lycana artaxerxes*), confined to a few Scottish hillsides. Kefenstein estimates the total number of *Lepidoptori* at 66,000 species—6000 butterflies and 60,000 moths. That such estimates, however, are not to be relied on is sufficiently proved by the fact that Bates gives the number of species as above 200,000. The geographical distribution of certain groups of *Lepidoptera* has been well wrought out by Mr. Wallace and other naturalists who have studied them in their native homes; but the division of this great order into geographical zones has still to be satisfactorily accomplished. Koch has recently proposed to place them in five such groups—(1) the European or Western fauna, including Northern Asia, the North of Africa (a region exceedingly poor in *Lepidoptera*, owing probably to the want of great forests, and to the marshy nature of vast tracts of land), and the northern parts of North America; (2) the African fauna, allied to the preceding; (3) the South Asiatic or Indian; (4) the Australian and Polynesian, allied to the Indian; and (5) the American fauna, distinguished by its exceeding richness.

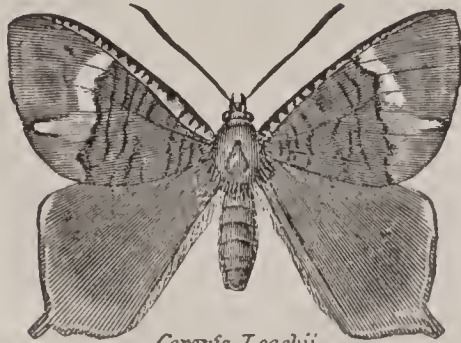
BUTTMANN, PHILIPP KARL (1764–1829), a German philologist, was born at Frankfort-on-the-Main in 1764. He was educated at the gymnasium in his native town and at the university of Göttingen. In 1789 he obtained an appointment in the library at Berlin, and for some years he edited *Spener's Journal*. In 1796 he became professor at the Joachimsthal Gymnasium, a post which he held for twelve years. In 1806 he was admitted to the Academy of Sciences, and in 1811 was made secretary of the Historico-Philological Section. He died in 1829. Buttmann's writings gave a great impetus to the scientific study of the Greek language, and his grammar is still a work of value.

BUTTON, from the French *bouton*, a small piece of

BUTTERFLIES & MOTHS. MOTHS.



Agarista Pales.



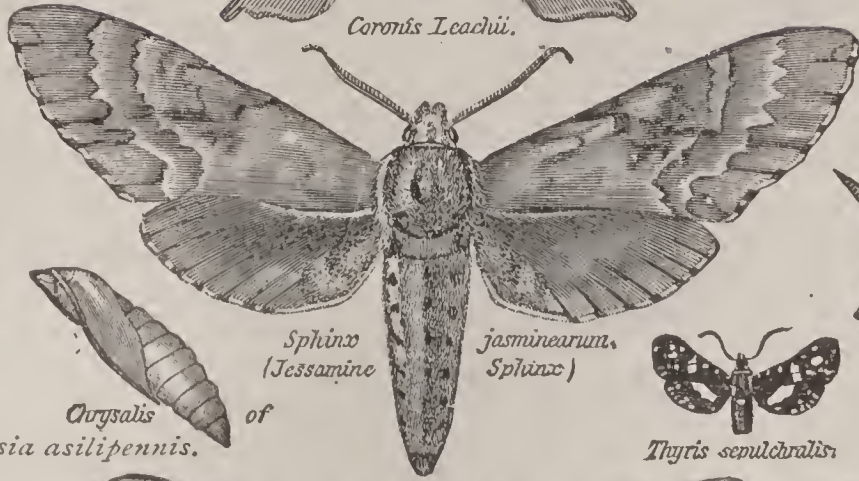
Coronis Leachii.



Casula Acronotus.



Zygaena filipendulae.
(Six-spot Burnet Sphinx)



Sphinx
(Jessamine
jasminearum,
Sphinx)



Larva of Sesia jas.



Egocera rectilinea.



Zygaena pulchella.



Chrysalis
Sesia asilipennis.



Thyris semihyalis.



Smerinthus
(Eye of Hawk
io.
Moth)



Sesia asilipennis.
(Gad-fly Hawk Moth)



Larva of
Sesia asilipennis.



Cossus
(Goat Moth)
ligniperda.



Aglaope Americana.



Atychia pumila.



Procris nebulosa.



Glanopsis Folletii.



Larva of Cossus ligniperda.
(Goat Moth)



Bombyx digramma.



Sericaria ranae.



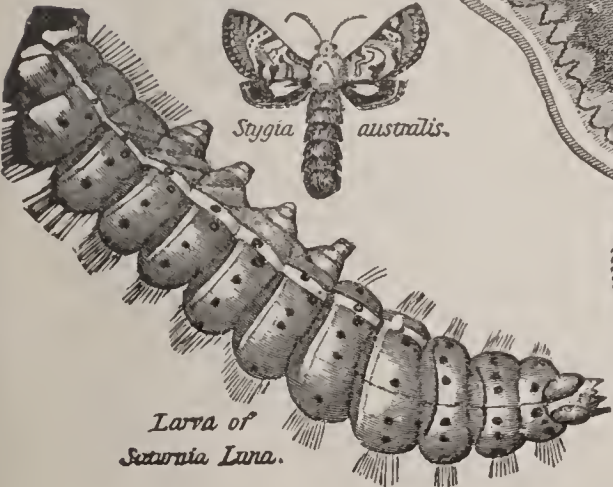
Zeuzera scalaris.



Stygia australis.



Easiocampa proboscidea.
(Proboscis Eggar)



Larva of
Saturnia Luna.



Saturnia Bauciniæ.

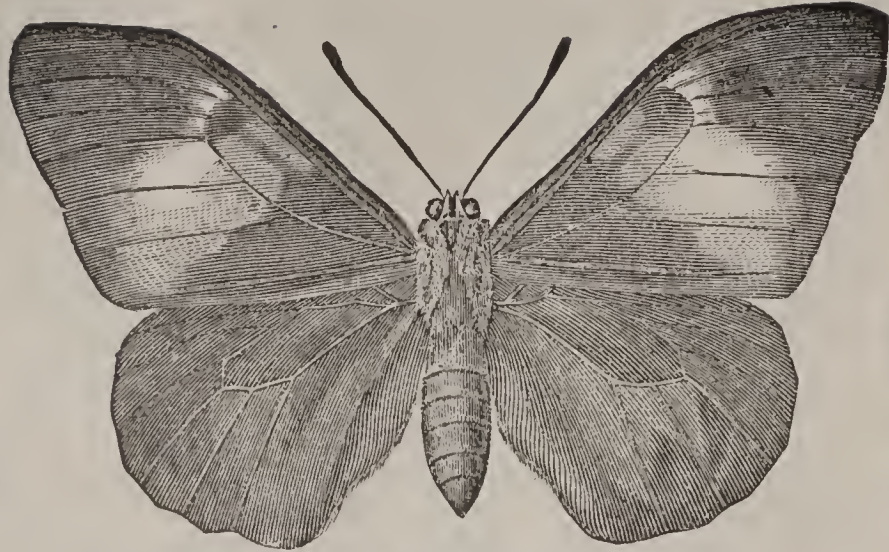


Larva of
Hepialus humilis.
(Ghost Moth)

BUTTERFLIES & MOTHS.



Erycina virgineensis.



Brassolis astyn.



Erycina virgineensis.



Eumenia tuxea.



Satyrus Balderi.



Zephyrius amor.



Larva of Morpho phidippus.



Urvia Boisduvali.



Eurybia carolina.



Myrina Jaffra.



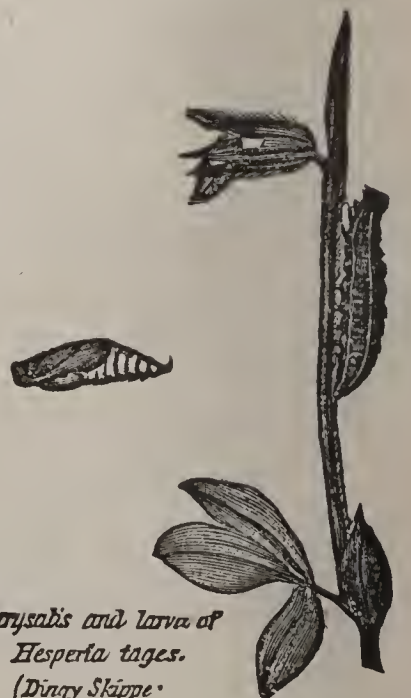
Polyommatus Thee.



Urvia Boisduvali.



Hesperia sabadus.



Chrysalis and larva of Hesperia tages. (Dingy Skipper.)

metal or other material used to connect different parts of a garment together by means of a button-hole, and also used for ornamentation. These apparently insignificant articles have produced a great alteration in our style of dress, for without them it would have been impossible to have reduced the flowing robes of our forefathers into our present simple costume. By this process we have lost the picturesque, as far as our garments are concerned, but have gained in compactness and utility. Indeed, the occupations of the present age could not be carried on in the togas and dresses of ancient times. The button manufacture did not assume any special form until toward the close of the reign of Queen Elizabeth. In paintings, commencing with the fourteenth century, studs or buttons appear as ornaments on the dresses of both sexes.

BUTTRESS, a projection for the purpose of giving additional support or strength to a wall. In early Romanesque architecture, the buttresses frequently presented the form of a pillar, after the tradition of classic art. The Norman buttress was generally broad, with slight projection, and finished on top with a splay against the wall; but it was also occasionally semi-circular, like a half column applied to the wall. Early English buttresses project much more boldly, and are considerably narrower than the Norman.

BUTYRIC ACID, C_4H_7OOH , is a volatile fatty acid, first prepared by Chevreul, by treating butter with an alkali. It possesses the disagreeable odor of rancid butter, and it is to it, in part at least, that the perspiration of animals owes its unpleasant smell. It is a mobile liquid, specific gravity .974, the vapor of which is inflammable, burning with a blue flame. It is readily soluble in water and alcohol, possesses a sour, burning taste, and corrodes the skin. Butyric acid forms a whole series of salts.

BUTYRIC ETHER, or PINE-APPLE OIL, is an exceedingly fragrant oil obtained by distilling butyric acid (or the butyric of lime), alcohol, and sulphuric acid. It is mixed with alcohol and sold as artificial pine-apple oil. There is little doubt that pine-apples owe their flavor to the presence of natural butyric ether. Butyric ether is the butyrate of ethyl, C_2H_5 , $C_4H_7O_2$.

BUXTON, a market-town and fashionable watering-place of England, in the county of Derby, thirty-one miles northwest of Derby, and 160 from London, connected with Derby by the Buxton and Rowsley extension line, and with Manchester by the Stockport, Disley and Buxton railway. It occupies a high position, being 900 feet above the sea-level, in an open hollow, surrounded at a distance by hills of considerable elevation, except on the southeast side, where the Wye, which rises about half a mile off, makes its exit. Population (1890), 5,320.

BUXTON, JEDEDIAH, a prodigy of skill in numbers, was born in 1704, at Elmtun, near Chesterfield in Derbyshire. He worked out every question after his own method, without any external aid, and without understanding the common rules of arithmetic. He would stride over a piece of land or a field, and tell the contents of it almost as exactly as if it had been measured by the chain. In this manner he measured the whole lordship of Elmtun, consisting of some thousand acres, and gave the contents not only in acres, roods, and perches, but even in square inches. After this, for his own amusement, he reduced them into square hairs' breadths, reckoning forty-eight to each side of the inch. His memory was so great, that in resolving a question he could leave off and resume the operation again at the same point after the lapse of a week, or even of several months. His perpetual application to figures prevented the smallest acquisition of other knowledge. He lived till

about the age of seventy, and died at his birth-place.

BUXTON, SIR THOMAS FOWELL (1786-1845), a distinguished philanthropist, whose name is inseparably associated with that of Wilberforce in the abolition of slavery, was born in Essex, April 1, 1786. He was made a baronet in 1840, and then devoted himself to a plan for ameliorating the condition of the African negroes. The failure of the Niger expedition was a blow from which he never recovered. He died on February 19, 1845.

BUXTORF, or BUXTORFF, JOHN (1564-1629), the first of a line of distinguished scholars, whose Hebrew and rabbinical learning shed lustre upon the University of Basel during the seventeenth century, was born at Camen in Westphalia on December 25, 1564. His early education was received at the schools of Hamm and Dortmund. After the death of his father, who was minister of Camen, Buxtorf resumed his studies, which had been interrupted for a short time by that event, at Marburg, and the newly-founded University of Herborn, at the latter of which Olevian and Piscator had been recently appointed professors of theology. From Herborn Buxtorf repaired to Heidelberg, and thence to Basel. After a residence of some time at Basel, Buxtorf proceeded to Zurich, for the purpose of attending the lectures of Bullinger, and after that to Geneva, where he enjoyed for a short time the instructions of Beza. On his return to Basel, Buxtorf undertook the duties of the Hebrew chair in the university, and discharged them for two years with such ability and acceptance, that at the end of that time he was unanimously appointed to the vacant office. From this date (1590) to his death in 1629, a period of thirty-nine years, Buxtorf remained in Basel, and devoted himself to the study of Hebrew and rabbinical literature with an energy and zeal that have rarely been paralleled in the history of any scholar.

BUXTORF, or BUXTORFF, JOHN (1599-1664), commonly called "junior," to distinguish him from his father, the subject of the preceding notice. He was born at Basel on August 13, 1599, and at a very early age displayed remarkable aptitude for the acquisition of languages. When only four years old he was sent to school, at which age he is said to have been able to read Latin, Greek, and Hebrew, in which he had been instructed by his father. At the age of twelve he entered the university, where he speedily distinguished himself above not only his equals, but his seniors in years, to so great a degree that when only sixteen he received the diploma of master of arts from the hands of his own father. From this time he devoted himself to the study of theology, turning his attention especially to the Hebrew language and its cognate dialects, and then proceeding to the study of rabbinical Hebrew, in which he soon attained such proficiency, that he is said, while still a young man, to have read through not only the Mishna, but also the Jerusalem and Babylonian Gemaras, or commentaries upon the text of the Talmud. On the death of his father in 1629, Buxtorf was unanimously designated as the fittest person to succeed so distinguished a Hebraist. From this date until his death he remained at Basel, declining two offers which were made to him from Groningen and Leyden, to accept the Hebrew chair in those two celebrated schools. When the professorship of the Old Testament became vacant in 1654 by the death of Theodore Zuinger, Buxtorf resigned the chair of theology, and accepted that of the Old Testament instead, holding both offices, and for some time that also of chief librarian to the university, until his death in 1664.

BUZZARD, a word derived from the Latin *Buteo*, through the French *Busard*, and used in a general sense

for a large group of Diurnal Birds-of-prey, which contains, among many others, the species usually known as the Common Buzzard (*Buteo vulgaris*, Leach), though the English epithet is now-a-days hardly applicable. The name Buzzard, however, belongs quite as rightfully to the birds called in books "Harriers," which form a distinct sub-family of *Falconidæ* under the title *Ciccinæ*, and by it one species, the Moor-Buzzard (*Circus æruginosus*), is still known in such places as it inhabits.

BYNG, GEORGE (1663-1733), Viscount Torrington, a distinguished English admiral, was born at Wrotham, Kent, and at the age of fifteen went to sea as a volunteer. After being several times advanced, he was in 1702 raised to the command of the "Nassau," a third rate, and was at the taking and burning of the French fleet at Vigo; and the next year he was made rear-admiral of the red. In 1704 he served in the grand fleet sent to the Mediterranean, under Sir Cloudesley Shovel, as rear-admiral of the red, and reduced Gibraltar. He was in the battle of Malaga, which followed soon afterwards, and for his gallantry in that action received the honor of knighthood. In 1727 George II., on his accession to the crown, placed him at the head of naval affairs as first lord of the Admiralty. He died January 15, 1733, in the seventieth year of his age, and was buried at Southill, in Bedfordshire.

BYNG, THE HON. JOHN (1704-1757), British admiral, fourth son of the subject of the preceding notice, entered the navy at an early age, became captain in 1727, and in 1755 was made rear-admiral of the red. In the year 1755 the British Government received intimation that the French were fitting out a naval expedition in Toulon, and it behooved them to attend to the defences of Gibraltar and Minorca. Nothing, however, was done until the intentions of the French were too apparent, and Byng was then entrusted with ten miserably equipped ships of war, and set sail from Spithead on the 7th April 1756. He put in at Gibraltar to receive stores, and there learnt that the French had made good their descent upon Minorca. On the 19th May he came in sight of St. Philip's, still held by the British, but failed to establish communications with the governor. On the following day he engaged with the French fleet, which was inferior in number of vessels, but vastly superior in armament and equipment. There seems no doubt that the division under Byng's charge did not second with sufficient eagerness the bold attack made by Admiral West. The action was indecisive, and next morning Byng called a military council, and it was resolved that, under the circumstances, it was hopeless to attempt anything further, and that Minorca must be left to its fate. The fleet returned to Gibraltar. The indignation of the English at that transaction was intense, and the Government took advantage of it to avert from themselves the charge of incapacity. Byng was at once superseded and brought home under arrest. A court-martial on his conduct sat during December 1756 and January 1757, and found that the admiral had not done his utmost to relieve St. Philip's or to defeat the French fleet, though they fully acquitted him of cowardice or treachery. The only punishment open to them to inflict was that of death, and they passed their sentence with the utmost reluctance, coupling it with an earnest recommendation to mercy. No attention was paid to this or to other attempts to mitigate what was felt to be an unduly severe punishment for mere incapacity. The unfortunate admiral was shot on the 14th March 1757.

BYNKERSHOEK, CORNELIUS VAN (1673-1743), a distinguished Dutch jurist, was born at Middleburg in Zeeland. In the prosecution of his legal studies, and

while holding the offices first of member and afterwards of president of the supreme court, he found the common law of his country so defective as to be nearly useless for practical purposes. This abuse he resolved to reform, and took as the basis of a new system the principles of the ancient Roman law. His works are very voluminous. The most important of them are the *Observationes Juris Romani*, published in 1710, of which a continuation in four books appeared in 1733; the treatise, *De Dominio Maris*, published in 1721; and the *Quæstiones Juris Publici*, published in 1737. Complete editions of his works were published after his death; one in folio at Geneva in 1761, and another in two volumes folio at Leyden in 1766.

BYROM, JOHN (1691-1763), a poet and miscellaneous writer, was born at Kersall, near Manchester, and educated at Trinity College, Cambridge. His first poetical essay, the well-known *Colin and Phæbe*, appeared in the *Spectator*, No. 603. After leaving the university he studied medicine at Montpellier, and became a convert to the mystical theology of Bourignon and Boehme. A collection of his miscellaneous poems was printed at Manchester, in two vols. 8vo, 1773, and reprinted at Leeds in 1814, with a life of Byrom by an anonymous writer. Byrom's *Private Journal and Correspondence* have appeared among the publications of the Cletham Society (vols. xxxiv. and xlv).

BYRON, GEORGE NOEL GORDON BYRON, LORD (1788-1824). The portrait of the most remarkable figure in the literature of this century is still too often made up on the principle of putting in all the shadows and leaving out all the lights. Not only the facts of his own life, but even the records and traditions of his ancestry, are partially selected in this way. It is true, no doubt, that a man's immediate ancestors must be supposed to have most influence on his character, and that Byron's immediate ancestors were far from being quiet, respectable people. His father, Captain Byron, was a profligate officer, whose first wife was a divorced lady with whom he had eloped to France, who married a second time only to find the means for paying his debts, and who left his wife as soon as her fortune was exhausted. His mother, Catherine Gordon, heiress of Gight in Aberdeenshire, was a fitful and passionate woman, who knew no stable halting-place between the extremes of an indulgent fondness and vindictive disfavor. His grand-uncle, whom he succeeded in the title, had killed his neighbor and relative, Mr. Chaworth, in a drunken brawl, had been tried before the House of Lords on the charge of murder and acquitted, but had been so wrought upon by remorse and the sense of public opprobrium, that he shut himself up at Newstead, let the place go to ruin, and acquired such a bad repute by his solitary excesses that he was known as the "wicked Lord Byron." Even in this wild ancestry it is easy to detect the corruption of good things. In other parts of the family line the nobler elements are seen running clear and pure. The poet's grandfather, Admiral Byron, "Foulweather Jack," who had as little rest on the sea as the poet on the land, had the virtues without the vices of the race. Farther down the family tree we find the Byrons distinguishing themselves in the field. Seven brothers fought in the battle of Edgehill.

The poverty in which Byron was born, and from which his accession to high rank did not free him, had much to do in determining his future career. That he would have written verses in whatever circumstances he was born we may safely believe; but if he had been born in affluence we may be certain that, with his impressionable disposition, he would never have been the poet of the Revolution—the most powerful exponent of the modern spirit. By the time of his birth (at Holles Street, Lon-

don, January 22, 1788), his father had "squandered the lands o' Gight awa," and his mother was on her way back from the Continent with a small remnant of her wrecked fortune. Mrs. Byron took up her residence in Aberdeen; and her "lame brat," as she called him in her fits, was sent for a year to a private school at 5s. a quarter, and afterwards to the grammar school of the town. Many little stories are told of the boy's affectionate gratitude and venturesome chivalry, as well as of his exacting and passionate temper. The sisters Gray, who were his successive nurses, found him tractable enough under kind treatment. His mother, whose notions of discipline consisted in hurling things at him when he was disobedient, had no authority over him; he met her violence sometimes with sullen resistance, sometimes with defiant mockery; and once, he tells us, they had to wrench from him a knife which he was raising to his breast. At school he passed from the first to the fourth class, but with all his ambition to excel he was too self-willed to take kindly to prescribed tasks, too emotional for dry intellectual work; and he probably learned more from Mary Gray, who taught him the Psalms and the Bible, than he did from his schoolmaster. Before he left Aberdeen, which he did on the death of his grand-uncle and his accession to the peerage in May 1798, he gave a remarkable proof of the precocious intensity of his affections by falling in love with his cousin Mary Duff. So strong a hold did this passion take of him, that six years afterwards he nearly went into convulsions on hearing of her marriage.

His mother, who had frequently taken advice for the cure of his lame foot, went with him to Nottingham, and placed him under the cure of an empiric, who tortured him to no purpose. The torture was renewed under the advice of a London physician at Dr. Glennie's school at Dulwich, at which he was entered in the summer of 1799; and at last the foot, as he wrote to his old Scotch nurse, was so far restored that he was able to put on a common boot. He was two years with Dr. Glennie, and though he made little progress in his classical studies, he had the run of his master's library, and added greatly to his general information. Before he had left for Harrow he had contracted another passion for his cousin Margaret Parker, so intense that he could not sleep nor eat when he was looking forward to meeting her. He went to Harrow in 1801, "a wild northern colt," as the head master said of him, very much behind his age in Latin and Greek. This deficiency he never quite overcame, though he worked enough to get into the same form with boys of his own age. Antiquarian studies never had any charm for him. But though, according to his own account, he was always cricketing, rebelling, and getting into mischief, his brain was not idle. Partly to keep up his school repute for "general information," he read every history he could lay hands on, and not without system either, for he set himself deliberately to know something about every country. He also went through all the British classics, both in Johnson and in Anderson, and most of the living poets. Few boys left Harrow with such a store of useful learning.

Byron's residence at Cambridge (Trinity College, 1805 to 1808, with interval of a year) added little to his knowledge of academical learning. The arts in which he qualified himself to graduate were swimming, riding, fencing, boxing, drinking, gaming, and the other occupations of idle undergraduates. When he went up to Cambridge he was wretched, he tells us, partly from leaving Harrow, partly "from some private domestic circumstances of different kinds," chiefly, it may be presumed, the want of money; but his friend Scrope Davies lent him large sums, and he lived with a certain reckless

happiness which had a great deal more to do with his moodiness and melancholy than the libertine excesses with which he is popularly credited. Much more importance than his residence in Cambridge, as bearing on his mental development, was his year's residence at Southwell. From that happy period, which saw the serious dawn of his genius, M. Taine has picked out only the unhappy violent quarrel with his mother, which was the cause of its termination. His intimacy with the Pigotts, and the expansion of his poetic impulses under their genial encouragement, are much more worthy of notice than this culmination of miserable bickerings which he was now strong enough to laugh at, when the domestic storm was over. He had scribbled many verses at Harrow, but had been too shy to show them to his roystering friends; and now finding for the first time an admiring audience, he put forth his powers in earnest, as he could do only under the influence of love or defiance. The result came before the public in the *Hours of Idleness*, published by Ridge of Newark in March 1807. The poems in that collection have something of the insipidity of the circumstances that gave them birth, but the fact of publication bound him to his vocation to a degree of which he was not at all aware. Hitherto his ambition had pointed towards politics as his natural field, and he said as much in the somewhat disdainful preface to his poems. Putting his ambition into verse, he characteristically compared himself to a slumbering volcano, and longed to burst on the world as a Fox or a Chatham. But the *Hours of Idleness* decided his career for him. When he went back to Trinity College he could not help eagerly watching their effect. Again and again he wrote to the friendly Miss Pigott to hear how they were succeeding. He was prepared for defeat, he said, and he promised to take vengeance on adverse critics. He was made a new man by the publication; he had tasted public applause and hungered for more of it. It was then that he carefully examined himself, and took stock of his acquirements in the very remarkable document dated November 30, 1807, to which we are indebted for our knowledge of the extent of his studies. In the midst of his rollicking set at Cambridge he was secretly girding up his loins, and collecting his powers to make a grand struggle for fame. Perhaps no poet was ever drawn out so directly by the thirst for public honor; no poet ever appealed so directly to the public eye and heart. He launched himself bodily before the world, almost ravenous for sympathy and homage.

It is generally said that but for the savage attack of the *Edinburgh Review* in the spring of 1808 Byron might never have returned to poetry. But the fact is that the review did not appear till a year after the publication of *Hours of Idleness*, and in the interval Byron, for all his farewell to poetry, was "scribbling," as he called it, more furiously than ever. "I have written," he wrote to Miss Pigott, six months before the Edinburgh attack, "214 pages of a novel; one poem of 380 lines, to be published (without my name) in a few weeks with notes; 560 lines of *Bosworth Field*, and 250 lines of another poem in rhyme, besides half a dozen smaller pieces. The poem to be published is a satire." This satire was the poem which he afterwards converted into a reply to the *Edinburgh Review*. He anticipated censure, and fore-armed himself—always as eager to defy reproof as he was to win applause. Apparently he put off publishing his satire till all his critics should have had their say, and he should know clearly where to hit. When the attack came it wounded him bitterly; but a friend who called on him at the time thought from the fierce light in his eye that he had received a challenge. He was in no hurry to publish; he worked at leisure,

with a confident consciousness of his powers, and *English Bards and Scotch Reviewers* did not make its appearance till the spring of 1809. When it did appear the authorship was soon discovered, and it was the talk of the town.

Soon after the publication of his satire, Byron, in June 1809, left for his travels on the Continent; and one would have expected that the young lord, with the wreath of triumph still fresh on his head after his first literary battle, would have gone on his journey with satisfaction and hopeful curiosity. He sailed in deep dejection, with all the bitterness of a man who feels himself friendless and solitary, and he returned after two years' wandering in Spain, Albania, Greece, Turkey, and Asia Minor, sadder than before. Why was this? Those who identify him with his own Childe Harold, are ready with the answer that he had lived a life of dissolute pleasure, and was already, at the age of twenty-one, experiencing the pains of satiety and exhaustion. But this is not borne out by such scanty light as he and his friends have thrown on his life at this period. He himself always protested, both in public and private, against being identified with Childe Harold. Childe Harold's manor was an old monastic residence; he left his country in bitter sadness; in the original MS. his name was Childe Burun; he left behind him a mother and a sister; and he passed the scenes of Byron's travels. But there the resemblance ends. The resemblance is really confined, as the author alleged, to local details. There is no reason to disbelieve what the author affirmed, that Childe Harold was a purely fictitious character, "introduced for the sake of giving some connection to the piece." To make him what he intended—"a modern Timon, perhaps a poetical Zeluco,"—the poet drew, no doubt, upon his own gloomier moods; he felt occasionally as he makes Harold feel habitually, but the process was much more dramatic than the world, in spite of his protests, took for granted. Byron, with all his bitter moods of forlorn despondency, was too susceptible a spirit to "stalk in joyless reverie" through the south of Europe, as his letters home testify. And we know that his picture of the Bacchanalian feasts in the monastery, with "Paphian girls," and "flatterers and parasites," is not at all like what actually occurred at Newstead Abbey. There were no "laughing dames" there, except the domestics, and the flatterers and parasites were his bosom friends whom he loved with a romantic ardor. They held "high jinks" there, as any young men might have done, masqueraded about in monkish habits to be in whimsical conformity with the place, practised pistol-shooting in the old hall, had a wolf and a bear chained at the entrance, had the garden dug up in search of concealed treasure, found a skull there, had it made into a cup, and passed this cup round after dinner, with the conceit that their mouths did it less harm than the worms, and that when its wit had ceased to sparkle, it had better be filled with Burgundy to make other wits sparkle than lie rotting in the earth. Byron himself was too poor, as Moore has remarked, to keep a harem, had such been his wish. He is known to have had a romantic passion for a girl who used to travel with him in England in boy's clothes; but whoever thinks he was satiated with this poor creature's devotion to him, should read the concluding stanzas of the second canto of *Childe Harold*, where the poet speaks in his own person, and laments her death in language utterly out of keeping with the dark and unfeeling mood of his "modern Timon."

To look for the causes of moodiness and melancholy in material circumstances is a very foolish quest; but we may be certain that insufficiency of this world's money, and the daily vexations and insults to which his rank was

thereby exposed, had much more to do with Byron's youthful gloom than satiety of this world's pleasures. His ambition pointed to political distinction, and having given fair youthful proof of the power he felt to be in him, his pride taught him to look for a warm welcome from his party chiefs when he came of age, but on the contrary, there was a haggle over his admission. Lord Carlisle held coldly aloof, and he had to wait with savage indignation till the marriage certificate of his grandfather was fished up in Cornwall before he could take his seat. This cold but perfectly correct and formal indifference added another pang to the bitterness with which he took leave of his country. When after two years' absence he returned, still dogged by impetuosity and the incivilities, real and imagined, that follow in its train, he "found fresh cause to roam." Nursed as he had been in superstitions, he could hardly keep from crying out that the stars had combined against him, when in the months following his return friend after friend went to the grave. Matthews was drowned in the Cam; Wingfield died of fever at Coimbra; and he heard of both deaths on the same day. His mother died in the same month, and in spite of all their quarrels, he felt the bereavement bitterly.

But the death which most deeply wounded him came later. Nothing ever racked him with sharper anguish than the death of her whom he mourned under the name of Thyrza. To know the bitterness of his struggle with this sorrow, we have only to look at what he wrote on the day that the news reached him (October 11th, 1811); some of his wildest and most fiercely misanthropical verse, as well as some of his sweetest and saddest, belongs to that blackest of dates in his calendar. It is time that something were done to trace this attachment, which has been strangely overlooked by the essayists and biographers, because it furnishes an important clue to Byron's character, and is, indeed, of hardly less importance than his later attachment to the Countess Guiccioli. Mr. John Morley, in an essay which ought to be read by everybody who wishes to form a clear idea of Byron's poetry as a revolutionary force in itself and an index to the movement of the time, remarks upon the respect which Byron, with all his raillery of the married state in modern society, still shows for the domestic idea. It is against the artificial union, the marriage of convenience, that Byron's raillery is directed; he always upholds singleness of attachment as an ideal, however cynically or mournfully he laments its infrequency, and points with laughter or with tears at the way in which it is crossed and cut short by circumstances when it does exist. Byron is not a railer against matrimony, except as a counterfeit of the natural union of hearts. His attachment to Thyrza shows that in this, as in other matters, he was transparently sincere. It is commonly taken for granted that his youth before, and, indeed, after his marriage with Miss Milbanke, was a featureless level of promiscuous debauchery; but those who look more narrowly into the facts cannot fail to see that, whatever may have been the number of his "light of loves,"—his fugitive passions were innumerable,—and however often he may have lapsed into vulgar rakery in bitter despair or reckless wantonness, he was always pining for some constant love, and cursing the fate that had denied it to him. This purer sentiment was always enshrined in his heart of hearts, from his boyhood to the end of his days. Who Thyrza was can probably never be known, but in trying to convey the impression that she was merely imaginary, probably with the intention of shielding his friend's memory, by declaring him innocent of a relationship unsanctioned by society, Moore really did Byron an injustice.

For some months after his return to England, Byron

lived at Newstead very unhappily. He wrote that he was growing nervous, "really, wretchedly, ridiculously, fineladically nervous." He could not arrange his thoughts; he feared his brain was giving way, and it would end in madness. He felt at times a strange tendency to mirth. Sometimes he thought of seeking relief in a warfare against society, and he besought one of his friends, when he heard of his deepening crimes, to remember the cause. The inconsistency between this hunger for sympathy and the reckless ferocity of the resolution, shows how distempered his mind was by care and sorrow, "like sweet bells jangled, harsh, and out of tune." At other times he thought more soberly of parliament as a diversion. All his life through, however, "most of his convulsions ended in verse." He found occupation in correcting the proof-sheets of *Childe Harold*. He went up to London, not to plunge into a lawless and pitiless course of crime, but to enter upon a political career. He spoke two or three times in the House of Lords on the House-Breaker's Bill, and a petition for Roman Catholic Emancipation, but the publication of *Childe Harold* put an end at once to his parliamentary ambitions. "When *Childe Harold* was published," he says, "nobody thought of my prose afterwards, nor indeed did I."

It has often been asked what was the cause of the instantaneous and widespread popularity of *Childe Harold*, which Byron himself so well expressed in the saying, "I awoke one morning and found myself famous." Chief among the secondary causes was the warm sympathy between the poet and his readers, the direct interest of his theme for the time. In the spring of 1812 England was in the very crisis of a struggle for existence. It was just before Napoleon set out for Moscow. An English army was standing on the defensive in Portugal, with difficulty holding its own; the nation was trembling for its safety. The dreaded Bonaparte's next movement was uncertain; it was feared that it might be against British shores. Rumor was busy with alarms. All through the country men were arming and drilling for self-defence. The heart of England was beating high with patriotic resolution.

What were the poets doing in the midst of all this? Scott, then at the head of the tuneful brotherhood in popular favor, was celebrating the exploits of William of Deloraine and Marmion. Coleridge's *Christabel* was lying in manuscript. His poetic power was, as he said himself, "in a state of suspended animation." Southey was floundering in the dim sea of Hindu mythology. Rogers was content with his *Pleasures of Memory*. Wordsworth took a certain meditative interest in public affairs, but his poems, "dedicated to liberty," though fine as compositions, have not the fire and sinew, the ardent directness of popular verse. In the earlier stages of the war Campbell had electrified the country with his heart-stirring songs; but by 1812 he had retired from the post of Tyrtæus to become the poet of *Gertrude of Wyoming*. Moore confined himself to political squibs and wanton little lays for the boudoir. It was no wonder that, when at last a poet did appear whose impulses were not merely literary, who felt in what century he was living, whose artistic creations were throbbing with the life of his own age, a crowd at once gathered to hear the new singer. There was not a parish of Great Britain in which there was not some household that had a direct personal interest in the scene of the pilgrim's travels—"some friend, some brother there." The effect was not confined to England; Byron at once had all Europe as his audience, because he spoke to them on a theme in which they were all deeply concerned. He spoke to them, too, in language which was not merely a naked expression of their most intense feeling; the spell

by which he held them was all the stronger that he lifted them with the irresistible power of his song above the passing anxieties of the moment. Loose and rambling as *Childe Harold* is, it yet had for the time an unconscious art; it entered the absorbing tumult of a hot and feverish struggle, and opened a way in the dark clouds gathering over the combatants through which they could see the blue vault and the shining stars. If the young poet had only thrown himself forward to ridicule the vanity of their struggles, he would most certainly have been spurned aside in the heat of the fight with anger and contempt; but he was far from being a heartless cynic; his sympathy with the Spanish peasant, his worship of the scenic wonders of the country, his admiration of the heroism of the women, his ardent battle-cry of freedom, burst through his thin pretence of cynicism. The pulse of heroism—heroism conscious of the worst that could happen, and undismayed by the prospect—beat beneath the garb of the cynic. It may have been by unconscious art, but it was not without dramatic propriety, that Byron turned in his second canto from the battlefields of Spain and the tremendous figure of war—

"With blood-red tresses deepening in the sun,
And death-shot glowing in his fiery hands—"

to "August Athena," "ancient of days," and the "vanished hero's lofty mound." In that terrible time of change, when every state in Europe was shaken to its foundation, there was a profound meaning in placing before men's eyes the departed greatness of Greece; it rounded off the troubled scene with dramatic propriety. Even the mournful scepticism of *Childe Harold* was not resented at a time when it lay at the root of every heart to ask, Is there a God in heaven to see such desolation, and withhold His hand?

Byron's poetic power did not advance in strength during the four years of his connection with high life. As he had been led to employ the Spenserian stanza by Campbell's *Gertrude of Wyoming*, which reached his hands just as he was setting out on his travels, he began now to try the metres in which Scott had made his fame. He produced in rapid succession the *Giaour* (May 1813), the *Bride of Abydos* (December 1813), *Corsair* (January 1814), *Lara* (August 1814), *Siege of Corinth* (January 1816), *Parisina* (February 1816). The best of these is the first; but they were received with an enthusiasm which rose higher and higher with each successive publication.

In November 1813 Byron proposed for the hand of Miss Milbanke, only daughter of Sir Ralph Milbanke, a wealthy baronet, and granddaughter and heiress of Lord Wentworth, "an eligible party," he owned in a letter to Moore, though he "did not address her with these views." His suit was rejected, but she expressed a desire to correspond with him. In September 1814 he made another proposal, which was accepted, and the marriage took place on January 2, 1815. On 10th December a daughter, named Augusta Ida, was born. On 15th January 1816 Lady Byron left her husband's house in London on a visit to her father at Kirkby Mallory. On the way she wrote an affectionate letter to Byron, beginning "Dear Duck," and signed "Your Pippin." A few days afterwards he heard from her father that she had resolved never to return to him, and this intelligence was soon confirmed by a letter from herself. In the course of next month a formal deed of separation was drawn up and signed. This is Moore's account of the affair. Lady Byron's account, published on the appearance of Moore's *Life*, differs chiefly as regards the part taken by her parents in bringing about the separation. Byron suspected her mother's

influence. Lady Byron took the whole responsibility on herself. Before she left town she thought Byron mad, and consulted Dr. Baillie. Dr. Baillie persuaded her that this was an illusion. She then told her parents that she desired a separation. The grounds on which she desired this were submitted by her mother to Dr. Lushington, who wrote that they justified a separation, but advised a reconciliation. Then Lady Byron had an interview with Dr. Lushington, and communicated certain facts, after which he declared a reconciliation impossible. A celebrated living authoress, who was slightly acquainted with Lady Byron, has, it is well known, made a definite statement on this subject, implicating a member of Lord Byron's own family. It is enough, however, to say that there is no evidence in support of the statement, and that it is virtually contradicted by Lady Byron's own behavior, as she remained on intimate terms with the relative referred to after the separation from her husband.

The real causes of the separation between Byron and his wife must always remain more or less matter of debate, no absolute proof being possible, and disputants reasoning on the presumptions according to temperament and possession. Byron's own statement that "the causes were too simple ever to be found out," probably comes nearest the truth. That their tempers were incompatible, that without treating her with deliberate cruelty he tried her forbearance in many ways, and behaved as no husband ought to do, that for her own happiness she had every reason to demand a separation, will readily be believed. After his marriage a huge accumulation of creditors began to press their claims; no less than nine executions were put in force in his house during the year; and Byron, under the indignities to which he had daily to submit, acted with an insane violence which might have justified any woman in believing that she was not safe under the same roof with him. It would have required a very peculiar temper to be compatible with his under the circumstances.

Why, at the time of the separation, did not the public look upon Byron and his wife as simply an ill-assorted pair who could not agree, and were better to separate? From the first it was rumored that Lady Byron refused to tell the cause of their separation, whence the public naturally inferred that it must be too terrible to be revealed, and busied themselves inventing and circulating crimes of suitable magnitude. Retribution fell upon Byron for his identifying himself with crime-stained buccaneers. The publication, by an indiscreet friend, of his *Farewell to Lady Byron*, and the verses entitled *A Sketch*, let loose the flood-gates of popular indignation in the press. On the *Farewell* indeed, there was some difference of opinion. A lady correspondent of the *Courier* declared that "if her husband had bidden her such a farewell she could not have helped running into his arms and being reconciled immediately." If Lady Byron had been such a woman—we have no right to blame her because she was not—the separation, in all probability, would never have taken place. The vast majority in English society resented the publication of the *Farewell* as an unworthy attempt to put his wife in the wrong, by holding up her unforgiving temper for public reprobation. We now know that the *Farewell* was written in all sincerity and bitterness of heart, with the tears falling on the paper as he wrote, and that it was published by the indiscreet zeal of a friend to whom he had sent the verses.

Byron took final leave of England in April 1816. From that date the external events of his life, down to his memorable interference in the cause of Greek independence present comparatively little variety, and excite comparatively little interest. Nothing occurred

after this to give a new turn or a new color to his poetic career; the powerful influences which had conspired to torture music out of him were modified by the lapse of time, but very little, if at all, by the incidents of his life. The bitter feeling with which he left England, the angry sense of injustice and spirit of proud and revengeful defiance, alternating hysterically with humble self-reproach and generous forgiveness, passed into lighter forms, but they never ceased to rankle. Like Manfred, he asked in vain for oblivion.

In the thick of his troubles, before leaving England, Byron conceived that he had never been "in a situation so completely uprooting of present pleasure, or rational life for the future." But his going abroad was really a most fortunate step both for his happiness and for the exercise of his genius. Abroad he consented to the sale of Newstead, and his income enabled him to live without being subject to the constant indignities which were such a torture to him at home. There also he found the solitude which he had always desired. "Society," he wrote in a letter to Moore, "as now constituted, is *fatal* to all great original undertakings of every kind," and in his case certainly this was true. His first place of residence abroad was Diodati, a villa in the neighborhood of Geneva. He spent the summer there, making two excursions to Switzerland,—one with Hobhouse, a shorter one with Shelley, who also was living at Geneva at the time. His travels through Flanders past the field of Waterloo appear in the third canto of *Childe Harold* (May to July 1816); the idea of writing *Manfred* on his way to Geneva (begun September 1816, finished February 1817) occurred to him on the Jungfrau, where the scene is laid. In November 1816 he removed to Venice, and lived there with the exception of short visits to Ferrara and Rome, till December 1819, writing fourth canto of *Childe Harold* (June 1817), *Beppo* (October 1817), *Ode to Venice* (July 1818), first canto of *Don Juan* (September 1818), *Mazeppa* (October 1818), second canto of *Don Juan* (December 1818), third and fourth cantos (finished November 1819). The bare catalogue of his literary work shows that the reports of the debauchery in which he lived at Venice, and from which he is said to have been rescued by the Countess Guiccioli, must be taken with a qualification. His acquaintance with this lady began in April 1819, and a mutual attachment sprang up at once. In December 1819 he removed to Ravenna. In the following month the Countess Guiccioli, having separated from her husband, occupied, under her father Count Gamba's presence and sanction, a suite of rooms in the same house with Byron at Ravenna; and though the families were formally separate, the union was not broken till Byron's departure for Greece. When, two years later, in 1821, the Gambas, in consequence of their connection with revolutionary movements, were ordered to quit Ravenna, Byron removed to Pisa, and lived with them under the same roof as before. Leigh Hunt, who was also received into Byron's house with his wife and children, has given us a somewhat ill-natured but sufficiently faithful picture of his life here, which was simply that of a busy domesticated literary man, with a taste for riding, swimming, and marksmanship. During Byron's residence here Shelley was drowned in the Gulf of Spezzia. In September 1822, the Gambas were ordered by the Tuscan Government to quit Pisa, and Byron removed with them to Genoa. His life at Genoa has been described with traces of airy malice, but with much vivacity and abundance of detail, by Lady Blessington.

While he lived with the Countess Guiccioli Byron's literary industry was prodigious. The following is the list:—Translation of the first canto of *Morgante Magiore*, February 1820; the *Prophecy of Dante*, March

1820; translation of *Francesca de Rimini*, March 1820; *Murino Faliero*, April to July, 1820; fifth canto of *Don Juan*, October to November 1820; *The Blues*, November 1820; *Sardanapalus*, January to May 1821; *Letters on Bowles*, February and March 1821; *The Two Foscari*, June to July 1821; *Cain*, July to September 1821; *Vision of Judgment*, September 1821; *Heaven and Earth*, October 1821; *Werner*, November 1821 to January 1822; *Deformed Transformed*, begun November 1821, finished August 1822; *Don Juan*, sixth, seventh, and eighth cantos, February 1822; ninth, tenth, and eleventh cantos, August 1822; *The Age of Bronze*, January 1823; *The Island*, February 1823; *Don Juan*, twelfth and thirteenth cantos, February 1823.

This quiet industrious life, however, did not cure him of his constitutional melancholy and restlessness. The curse of his nature was that he exhausted his pleasures too quickly. He too soon became dissatisfied with past triumphs. Much as he enjoyed the success of the works which poured with such rapidity from his pen, he began to harp on what he might have done; began to think that the tide was turning against him in England, and to hunger for new distinction. In this spirit, towards the end of 1821 he commenced those negotiations for the publication of a journal in England in conjunction with Shelley and Leigh Hunt, which ended in the abortive *Liberal*. *The Vision of Judgment*, the greatest of modern satires, appeared in the first number of the *Liberal*, in the summer of 1822; only three more numbers were published. According to Moore, the sign of an intention to take an active part in alliance with English Radicalism did more to make Byron unpopular in England than the most shocking of his poems. It was fortunate for his popularity that a more glorious enterprise offered itself to him in the Greek struggle for independence. He was brought into connection with this through the London Greek committee, of which he was appointed a member in May 1823. He at once decided to take action, raised 50,000 crowns, bought an English brig of 120 tons, and sailed from Genoa with arms and ammunition in July. The high hopes with which he set out were soon broken down; the Greeks had no plans, and he was compelled to spend five months of inglorious delay at Cephalonia. Reaching Missolonghi in December, after a chase by Turkish cruisers, he found dissension among the Greek chiefs and insubordination among their followers. He was appointed commander-in-chief of an expedition against Lepanto; but before anything could be done he was seized with fever, and died on the 19th April 1824.

It is yet, perhaps, too soon to hazard a speculation as to the permanence of Byron's fame. That he holds a lower place in the opinion of the present generation than of his own, so far at least as concerns his own country, is undeniable, and is probably due to the fact that poets now are tried by more strictly artistic standards; verses are judged, proportions measured, rare and precious excellencies appreciated with the jealous scrutiny and skilled recognition of professional workmen.

It was not on the artistic side that Byron's strength lay. Words were far from niggardly in their supplies to him; they flowed in upon him with sufficient readiness for free and direct expression; his thoughts were not blunted, his conceptions were not turned awry by hopeless struggling with stubborn material, but language was not pliant in his hands for the finer achievements of art. The truth is, he felt too deeply to be a poet of the very highest rank; the feeling of the moment took too large and embarrassing a hold of him to leave his hand free for triumphs of execution. This interfered both with the perfecting of details, and with the severe ordering of parts into an artistic whole. In Byron we are

always struck more with the matter than with the form. It is his theme that absorbs attention, and the impetuous vehemence and stormy play of passion with which he hurries it on. This is, doubtless, an insecure foundation for lasting fame. The work of a man so keenly alive to the impressions of the hour, so closely bound up with his generation as Byron, runs a risk of perishing when the things that most deeply stir that generation have ceased to stir mankind. The secret of his tremendous power was his passionate sympathy with his own time. By the accidents of birth and circumstances, he was placed in opposition to the existing order of things, and his daring temper made him the exponent of the spirit of revolution. He is the greatest modern preacher of "liberty, equality, and fraternity."

The most hopeful circumstance for the permanence of Byron's name is that he stands at the opening of a new era as its largest literary figure. Sooner or later, as new phases of thought and sentiment supervene upon the old, his writings must pass out of the catalogue of popular literature, but his personality will always fascinate. He is like Hamlet in this respect. It may safely be predicted that Byron will not cease to be read till Hamlet has ceased to be studied. There is not a little in common between the characters, in spite of superficial difference. In the desolation of his youth, in his moodiness, in his distempered mobility between the extremes of laughter and tears, in his yearning for sympathy, his intensity of friendship, his dark fits of misanthropy, his habit of brooding over the mysteries of life, Byron unconsciously played the character of Hamlet with the world for his stage, and left a kindred problem for the wonder of mankind,—a problem which no analysis can make clear, and which every one may pray that it be not given him to understand.

BYRON, HON. JOHN (1723-1786), admiral and circumnavigator, second son of the fourth Lord Byron, and grandfather of the poet, was born November 8, 1723. While still very young he accompanied Anson in his voyage of discovery round the world. During many successive years he saw a great deal of hard service, and so constantly had he to contend, on his various expeditions, with adverse gales and dangerous storms, that he was aptly nicknamed by the sailors, "Foul-weather Jack."

In 1769 he was appointed governor of Newfoundland. In 1775 he attained his flag rank, and in the following year became a vice admiral. In 1778 he was despatched with a fleet to watch the movements of the Count d'Estaing, and in July 1779 fought an indecisive engagement with him off Grenada. He soon after returned to England, retiring into private life, and died April 10, 1786.

BYSTRÖM, JOHANN NICOLAUS (1783-1848), Swedish sculptor, was born December 18, 1783, at Philipstad. At the age of twenty he proceeded to Stockholm and studied for three years under Sergell. In 1809 he gained the academy prize, and in the following year visited Rome. He died at Rome in 1848. Among Byström's numerous productions the best are his representations of the female form, such as Hebe, Pandora, Juno suckling Hercules, and the Girl entering the Bath. His colossal statues of the Swedish kings are also much admired.

BYZANTINE EMPIRE. See GREEK EMPIRE.

BYZANTINE HISTORIANS. The historians who have related the transactions under the Eastern, Greek, or Byzantine empire for the millennium intervening between the death of Theodosius and the Turkish conquest of Constantinople, are collectively classed together under the above designation. Until, however, the middle of the 6th century, they are, with one conspicuous ex-

ception, too merely fragmentary to deserve special notice. This exception is PROCOPIUS, the Polybius of his age, whose histories are of such importance as to demand a separate article. We shall arrange his successors in chronological order, distinguishing between the historians properly so called and the chronologers.

HISTORIANS.—I. AGATHIAS of Myrina in Ætolia, was born under Justinian, about 536 A.D., and is believed to have died under Tiberius the Second about 580. His character as an epigrammatist and an editor of poetry has been already considered under the head Anthology. We are indebted to him in his historical capacity for an extremely valuable narrative of six of the most eventful years of the Greek empire, 553–558. The first book details the conquest of Italy from the Goths by Justinian's general Narses; the remainder describe, along with other incidents, the Persian war of 554–556, the two great earthquakes of 554 and 557, the great plague, the rebuilding of St. Sophia, and Belisarius's last exploits against the Bulgarians. The history terminates abruptly, and was probably left unfinished. As a narrator, Agathias is sensible and impartial, but deficient in general knowledge, and far below the standard of a philosophic historian. His style is rhetorical, but not unpleasing. II. MENANDER PROTECTOR, the inferior imitator of Agathias, lived under Mauricius, whose reign began in 581, and continued the history of Agathias to the date of the accession of that emperor. His work was comprised in eight books, which are entirely lost, with the exception of the 27th and only existing book of the extensive compilation of historical excerpts made by the Emperor Constantine Porphyrogenitus. III. THEOPHYLACTUS of Simocatta, a sophist and civilian of Egyptian extraction, wrote the history of the Emperor Mauricius (582–602) in eight books, all of which are preserved. The work seems to have been completed under Heraclius. Theophylactus lived until 628 or 629. He is an accurate and not inelegant writer, but frequently trivial and frigid. IV. JOHANNES of Epiphaneia, a contemporary of Theophylactus, wrote the history of the wars of the Greeks and Persians from the latter part of Justinian's reign until the restoration of Chosroes II. by Mauricius (591). His history has never been printed, but is said to exist in MS. at Heidelberg. V. The Emperor CONSTANTINE PORPHYROGENITUS (reigned 911–959). Among the many services rendered to literature by this learned sovereign is to be enumerated his history of his grandfather Basil the Macedonian, emperor from 867 to 886. VI. GENESIUS, who lived in the time of Constantine Porphyrogenitus, wrote by his order the history of Basil II. and of his four immediate predecessors (813–886). The work is brief and meagre, but is almost the only authority we possess for a portion of the period described. VII. JOHANNES CAMENIATA, a native of Thessalonica, and cross-bearer to the archbishop, wrote an account, which has been preserved, of the sack of that wealthy city by the Saracens in 904. Cameniata himself was one of the captives, and his narrative is very lively and valuable. VIII. LEO DIACONUS, an ecclesiastic in the latter half of the 10th century, is the author of an indifferently written but honest and instructive, narrative of the remarkable period of national recovery under the emperors Romanus II., Nicephorus Phocas, and John Zimisces, when Crete was reconquered, Syria invaded, and the Russians driven out of Bulgaria (959–975). Leo wrote at least as late as 993. IX. NICEPHORUS BRYENNIUS, the son-in-law of the Emperor Alexius Comnenus, and one of the first statesmen and generals of the time, wrote in four books the history of the empire under the Comneni of from 1057 to 1081. X. His still more celebrated wife, ANNA COMNENA, daughter of the Emperor

Alexius, and the marvel of her skill at that extremely low period of female education, wrote (1148) the history of her father in fifteen books. The period of Alexius is peculiarly interesting as that in which the barrier of Byzantine isolation was broken down, and the East and West brought into contact by the encroachments of the Normans on the Eastern empire and by the Crusades. We cannot be too grateful to the Princess Anna for her vivid sketch of the arrival of the Crusaders at Constantinople, and the relations between them and the Byzantine court. Her work, however, must be used with great caution. Gibbon's employment of it is an example of his usual discernment. XI. Her history was continued by JOHANNES CINNAMUS, one of the most eminent of all the Byzantine historians. He was one of the imperial notaries under the reign of Manuel Comnenus (1143–1180), an office nearly corresponding to that of a modern secretary of state. He had, consequently, great administrative experience, and a thorough knowledge of the relations of the empire with foreign states, and of the internal affairs of the latter. He is thus in an excellent position for writing history, besides which his own judgment and sagacity are of a very superior order, and his style is commonly terse and clear. Like most writers who have themselves participated in the transactions they describe, he is not altogether exempt from partiality. His history comprehends the period from the death of Alexius Comnenus in 1118 to the siege of Iconium by Manuel Comnenus in 1166, four years before the death of that emperor. There is little doubt that Cinnamus brought his work down to the close of Manuel's reign, and that the conclusion is lost. XII. NICETAS ACOMINATUS, or CHONIATES, a patrician and holder of many important public offices under the emperor Isaac Angelus at the beginning of the 13th century, described the same period as Cinnamus, but continued his narrative to 1206. The latter books of Nicetas's history possess especial importance, inasmuch as they contain the Byzantine account of the taking of Constantinople by the Latins in the fourth crusade (1204). Nicetas's own palace was burned and plundered, and he escaped with difficulty to Nicæ, where he composed his history under the protection of the emperor Theodore Lascaris. His narrative, though too rhetorical, is striking and pathetic; it necessarily requires careful comparison with the Latin accounts. The remainder of his history is also valuable. He is also said to be the author of an account of the statues destroyed by the Latins, which, however, is thought to have been interpolated by a later writer. It has been published by Wilkin (Leipsic, 1830). XIII. GEORGIUS ACROPOLITA, an eminent scholar and diplomatist, who lived from 1220–1282, wrote the history of the Eastern empire during its subjugation by the Latins (1204–1261). The work is so brief that it has been regarded as merely an epitome of Acropolita's original history. XIV. GEORGIUS PACHYMERES, a priest and ecclesiastical jurist under Michael and Andronicus Paleologus, wrote the history of these emperors (1258–1308) in thirteen books. Pachymeres is one of the best of the Byzantine historians; his style is singularly good for his age, and his tone dignified and impartial. XV. NICEPHORUS GREGORAS, a man of great learning, but passionate and untrustworthy as an historian, wrote the history of his country from 1204–1358, in thirty-eight books, the last fourteen of which remained unpublished until 1855, when they were edited at Bonn by Immanuel Bekker. After the recovery of Constantinople by the Greeks in 1261, Byzantine politics entered into a new phase; the feeble and distracted empire, unable to make head against the Turks, was compelled to lean for support upon the European powers, which it sought to obtain by patching up the

long-standing religious schism. Greeks and Latins, however, were equally resolved to concede nothing save in appearance, and the history of the time is to a great extent that of hollow negotiations, meant only to deceive. In these Gregoras had a considerable share; he also took an active part in the internal religious controversies of his church, and his personal knowledge of affairs imparts considerable value to his history. He was at one time a favorite of the Emperor Cantacuzenus, but was subsequently persecuted by him. He possessed extensive attainments, and is especially celebrated for having anticipated the astronomers of Pope Gregory XIII. in the correction of the Julian Calendar. XVI. The Emperor JOHN CANTACUZENUS, after his abdication, wrote the history of his times from 1320-1357, including the fifteen years of his own eventful reign. This "is written," as Dr. Plate observes, "with elegance and dignity, and shows that the author was a man of superior intelligence, fully able to understand and judge of the great events of history;" but Gibbon's remark is no less just that Cantacuzenus "presents, not a confession, but an apology of the life of an ambitious statesman. Instead of unfolding the true counsels and characters of men, he displays the smooth and specious surface of events, highly varnished with his own praises and those of his friends." The truth is arrived at by a comparison of Cantacuzenus with the rival and inimical narrative of Nicephorus Gregoras, so far as they cover the same ground. XVII. JOHANNES CANANUS wrote an account of the siege of Constantinople by Amurath II. in 1422; and XVIII. JOHANNES ANAGNOSTES, described the capture of Thessalonica by the same Sultan in 1430. XIX. MICHAEL DUCAS, the chief historian of the fall of the Greek empire, escaped from the sack of Constantinople to Lesbos, where he entered into the service of the prince of that island, and wrote his history after the reduction of Lesbos by the Turks in 1462. It commences in 1342, and goes down to the conquest of Lesbos. Ducas is the most difficult and barbarous of all the Byzantine historians, and the only one who appears entirely unacquainted with classical models. At the same time he is among the most intelligent, impartial, and sagacious. The ruin of the Greek empire has also been recorded by XX. GEORGIUS PHRANTZES and XXI. LAONICUS CHALCOONDYLES. Both of these were eminent among the statesmen of their disastrous period, and Phrantzes in particular played a very important part in diplomacy. Broken hearted at the capture of his native city and the death of his son and daughter in slavery, he retired to a monastery in Corfu, where he wrote his *Chronicon* about 1477, to which year it extends. It commences at the year 1259, but by far the most valuable portion is that which records the transactions of the author's lifetime, and the value of this is very great. Chalcocondyles, beginning at 1298, brings his history down to the invasion of the Morea by the Turks in 1463. He also is an accomplished man, of much experience in public business; and although his digressions respecting the affairs and manners of other nations are irrelevant, and betray ignorance, they are interesting as an index to the knowledge possessed by his countrymen at this time.

The contribution of the Byzantine historians to literature may be compared with the part enacted by the Byzantine empire in the history of the world. That empire added nothing to the treasures of civilization, but it preserved much. Like the earth in winter, it seemed barren and unlovely, but it kept the good seed hidden in its bosom for better days. Had it perished before the intellectual revival of Western Europe, the solution of continuity between ancient and modern culture would have been irreparable. In like manner the

Byzantine historians preserved the traditions of historical composition, while their brethren of the West were merely chroniclers and annalists.

BYZANTIUM, an ancient Greek city on the shores of the Bosphorus, occupied the most easterly of the seven hills on which the modern Constantinople has been built. It is said to have been founded by a band of Megarians, 667 B.C., but the original settlement having been destroyed in the reign of Darius Hystaspes by the Satrap Otanes, it was recolonized by Pausanias, who wrested it from the hands of the Medes after the battle of Plataea (479 B.C.)—a circumstance which has led several ancient chroniclers to ascribe its foundation to him. Its situation, said to have been fixed by the oracle of Apollo, was remarkable for beauty and security. Its position on the Bosphorus gave it complete control over the extensive corn-trade carried on by the merchants of the West with the northern shores of the Euxine; the absence of tides and the depth of its harbor rendered its quays accessible to vessels of large burden; while the tunny and other fisheries at the mouth of the Lycus were so lucrative as to procure for the deeply-curved bay into which that river fell the appellation of the Golden Horn. The greatest hindrance to its continued prosperity consisted in the miscellaneous character of the population, partly Lacedæmonian and partly Athenian, who flocked to it under Pausanias. From this circumstance it was a subject of dispute between these states, and was alternately in the possession of each, till it achieved its independence of both only to fall into the hands of the Macedonians; and from the same cause arose the violent contests of its intestine factions, which ended in the establishment of a rude and turbulent democracy. About seven years after its second colonization, Cimon wrested it from the Lacedæmonians; but in 440 B.C., it revolted and returned to its former allegiance. Alcibiades, after a severe blockade (408 B.C.), gained possession of the city through the treachery of the Athenian party; and it continued an ally of Athens until 405 B.C., when it was retaken by Lysander after the battle of Ægos-potami, and placed under a Spartan harmost. It was under the Lacedæmonian power when the Ten Thousand, exasperated by the conduct of the governor, made themselves masters of the city, and would have pillaged it had they not been repressed by the firmness and promptitude of Xenophon. In 390 B.C. Thrasybulus, with the assistance of Heraclides and Archebius, succeeded in expelling the Lacedæmonian oligarchy, and in restoring democracy and the Athenian influence both in Byzantium and Chalcedon. After having withstood an attempt under Epaminondas to restore it to the Lacedæmonians, Byzantium joined with Rhodes, Chios, Cos, and Mausolus, king of Caria, in throwing off the yoke of Athens, but soon after sought Athenian assistance when Philip of Macedon, having overrun Thrace, advanced against it. The succors which were sent from Athens under Chares, on their arrival suffered a severe defeat from Amyntas, the Macedonian admiral, but in the following year gained a decisive victory under Phocion, and compelled Philip to raise the siege. The deliverance of the besieged from a surprise, by means of a flash of light which revealed the advancing masses of the Macedonian army, has rendered this siege peculiarly memorable. As a memorial of the miraculous interference the Byzantines erected an altar to Torch-bearing Hecate, and stamped a crescent on their coins as a symbol of the portent, a device which is retained by the Turks to this day. They also granted the Athenians extraordinary privileges, and erected a monument in honor of the event in a public part of the city. During the reign of Alexander, Byzantium was compelled to

acknowledge the Macedonian supremacy; after the decay of the Macedonian power, it regained its independence, but suffered from the repeated incursions of the Scythians. The losses which they sustained by land roused the Byzantines to indemnify themselves on the vessels which still crowded the harbor, and the merchantmen which cleared the straits; but this had the effect of provoking a war with the neighboring naval powers. The exchequer being drained by the payment of 10,000 pieces of gold to buy off the Gauls who had invaded their territories about 279 B.C., and by the imposition of an annual tribute which was ultimately raised to 80 talents, they were compelled to exact a toll on all the ships which passed the Bosphorus,—a measure which the Rhodians resented and avenged by a war, wherein the Byzantines were defeated. The retreat of the Gauls enabled Byzantium to render considerable services to Rome in the contests with Philip II., Antiochus and Mithridates. During the first years of its alliance with Rome it held the rank of a free and confederate city; but having sought the arbitration of the capital on some of its domestic disputes, it was subjected to the imperial jurisdiction, and gradually stripped of its privileges, until reduced to the status of an ordinary Roman colony. In recollection of its former services, the Emperor Claudius remitted the heavy tribute which had been imposed on it; but the last remnant of its independence was taken away by Vespasian, who, in answer to a remonstrance from Apollonius of Tyana, taunted the inhabitants with having “forgotten to be free.” During the civil wars, it espoused the party of Pescennius Niger; and though skilfully defended by the engineer Periscus, it was besieged and taken (196 A.D.) by Severus, who destroyed the city,

demolished the famous wall, which was built of massive stones so closely rivetted together as to appear one block, put the principal inhabitants to the sword, and subjected the remainder to the Perinthians. This overthrow of Byzantium was a great loss to the empire, since it might have served as an effective protection against the Goths, who afterwards sailed past it into the Mediterranean. Severus, however, afterwards relented, and, rebuilding a large portion of the town, gave it the name of Augusta Antonina. He ornamented the city with baths, and surrounded the hippodrome with porticoes; but it was not till the time of Caracalla that it was restored to its former political privileges. It had scarcely begun to recover its former flourishing position when, from the capricious resentment of Gallienus, the inhabitants were once more put to the sword, and the town given up to be pillaged. From this disaster the inhabitants recovered so far as to be able to give an effectual check to an invasion of the Goths in the reign of Claudius II., and its fortifications were greatly strengthened during the civil wars which followed the abdication of Diocletian. Licinius, after his defeat before Adrianople, retired to Byzantium, where he was besieged by Constantine, and compelled to surrender. To check the inroads of the barbarians on the north of the Black Sea, Diocletian had resolved to transfer his capital to Nicomedia; but Constantine, struck with the advantages which the situation of Byzantium presented, resolved to build a new city there on the site of the old, and transfer the seat of government to it. The design was quickly put into execution, and the new capital was inaugurated with special ceremonies 330 A.D. See CONSTANTINOPLE.

C.

C is the third letter of the English alphabet and of the other alphabets derived from the Latin. Its history has been singular. It occupied the same place in the alphabet, and had the same phonetic value, — that of the sonant guttural *g*, the corresponding surd being represented, as in Greek, by *K*. (See under *B* for the distinction between sonants and surds.) These two sounds became confused at Rome at an early time — before 450 B.C., and perhaps much earlier. The *k*-sound was lost and the symbol *C* represented both the *g*-sound, as in *macister*, *lecio*, and the original *k*-sound, as in *ensor*, *consul*. The symbol *K*, however, was not entirely lost; it is found irregularly in inscriptions of all dates down to the times of the empire, and regularly as an initial abbreviation of *Kalendæ*, *Karthago*, *Kæso* (the proper name). In the 3d century B.C., the distinction between the two sounds was revived; but the symbol *K* was not replaced in ordinary use. *C* remained as the representative of the surd, losing its original sonant value; while a modification of it (*G*) was introduced to represent the sonant. The symbol retained its old value only when as the initial letter it represented the names *Gaius* and *Gnæus*, — which, in consequence, are often erroneously written and sounded *Caius* and *Cnæus*. With this changed value the symbol *C* passed into the languages which are represented by the Latin alphabet.

As a numeral, *C* (for *centum*) denotes 100. In music, placed after the clef, it indicates that the measure is of the value of four crotchets.

CAABA. See KAABA and MECCA.

CABAGAN, a town of Luzon, one of the Philippine Islands, in the province of Cagayan, situated on the N. E. coast. It is the second largest city in the province, and has a population of 11,100.

CABANIS, PIERRE JEAN GEORGE (1757-1808), a distinguished French physiologist, was born at Cosnas in 1757. His father was a lawyer of eminence, and chief magistrate of a district in the Lower Limousin. His education was at first entrusted to the priests, but at the age of ten he was transferred to the College of Brives. He showed great aptitude for study, but his independence of spirit was so excessive that he was almost constantly in a state of rebellion against his teachers, and was finally dismissed from the school. After a year's residence at home he was taken to Paris by his father and left to carry on his studies at his own discretion. He attended classes at the university, and read with particular delight Locke's essay *On the Human Understanding*. Two years had been spent in close and assiduous study, when in 1773 he received the offer of the post of secretary to the prince-bishop of Wilna. He accepted it and passed two years at Warsaw, viewing

with disgust and contempt the petty intrigues and jealousies that accompanied the first partition of Poland.

On his return to Paris he devoted himself mainly to poetry, for which he had always a strong inclination. He was intimate with the poet Roucher, and was introduced by Turgot to the society of Mme. Helvetius, where he met such men as Diderot, D'Alembert, D'Holbach, Condillac, Franklin, and Jefferson. About this time he ventured to send in to the Academy a translation of the passage from Homer proposed for their prize, and though his attempt passed without notice, he received so much encouragement from his friends that he contemplated translating the whole of the *Iliad*.

At the earnest desire of his father he relinquished these pleasant literary employments, and resolved to engage in some settled profession. After deliberation he fixed upon that of medicine, and began his studies under Dubreuil. In 1789 his *Observations sur les Hôpitaux* procured him an appointment as administrator of hospitals in Paris. From inclination and from weak health he never engaged much in practice as a physician. His interest lay entirely in the deeper problems of medical and physiological science, and these he investigated with unusual closeness and minuteness. Nor had he quite given up his fondness for literary society; his residence at Auteuil on the outskirts of the capital enabled him still to continue his intercourse with Diderot, Condillac, and others. He had even the pleasure of reading to Voltaire part of his translation of the *Iliad*, and of receiving warm commendation from the veteran critic. But he had long ceased to occupy himself with that work; and in his *Serment d'un Médecin*, which appeared in 1789, he bade a formal adieu to poetry.

In the great political struggle of the time Cabanis espoused with enthusiasm the cause of the Revolution, to which he was attached from principle, and of which the opening prospects were congenial to his active and ardent mind. During the two last years of Mirabeau's life he was intimately connected with that extraordinary man, who had the singular art of pressing into his service the pens of all his literary friends. Cabanis united himself with this disinterested association of laborers, and contributed the *Travail sur l'Éducation Publique*, a tract which was found among the papers of Mirabeau at his death, and was edited by the real author soon afterwards in 1791. During the illness which terminated his life, Mirabeau confided himself entirely to the professional skill of Cabanis. Of the progress of the malady, and the circumstances attending the death of Mirabeau, Cabanis drew up a very detailed narrative, which is not calculated, however, to impress us with any high idea of his skill in the treatment of an acute inflammatory disease. Condorcet was another distinguished

character with whom Cabanis was intimate, and whom he endeavored, though without success, to save from the destiny in which he afterwards became involved by the calamitous events of the Revolution. Shortly after this he married Charlotte Grouchy, sister to Madame Condorcet and to General Grouchy, — a union which was a great source of happiness to him during the remainder of his life.

After the subversion of the Government of the terrorists, Cabanis, on the establishment of central schools, was named professor of Hygiene in the medical schools of the metropolis. Next year he was chosen member of the National Institute, and was subsequently appointed clinical professor. He was afterwards member of the Council of Five Hundred, and then of the Conservative Senate. The dissolution of the Directory was the result of a motion which he made to that effect. But his political career was not of long continuance. A foe to tyranny in every shape, he was decidedly hostile to the policy of Bonaparte, and constantly rejected every solicitation to accept a place under his Government. Cabanis died May 5, 1808, leaving a widow and a daughter.

CABARRUS, FRANÇOIS (1752-1810), conspicuous in Spanish history as a financier, was born at Bayonne, where his father was a merchant. Being sent into Spain on business he fell in love with a Spanish lady, and marrying her, settled in Madrid. Cabarrus became conspicuous, especially in finance. He originated a bank, and a company to trade with the Philippine Islands; and as one of the council of finance he had planned many reforms in that department of the administration, when Charles III. died (1788), and the reactionary Government of Charles IV. arrested every kind of enlightened progress. The men who had taken an active part in reform were suspected and persecuted. Cabarrus himself was accused of embezzlement, and thrown into prison. After a confinement of two years he was released, created a count, and employed in many honorable missions; he would even have been sent to Paris as Spanish ambassador, had not the Directory objected to him as being of French birth. Cabarrus took no part in the transactions by which Charles IV. was obliged to abdicate and make way for Joseph, brother of Napoleon, but his French birth, and intimate knowledge of Spanish affairs recommended him to the Emperor as the fittest person for the difficult post of minister of finance. In this capacity Cabarrus died (1810).

CABATUAN, a town of the Philippine Islands, in the province of Iloilo, in Panay, situated on the banks of the River Tiguin, which changes from an almost empty channel to an impetuous torrent, so that navigation is frequently impossible.

CABAZERA, a town of the Philippine Islands, capital of the province of Cagayan in Luzon, with a population of about 15,000.

CABBAGE. The parent form of the variety of useful culinary vegetables included under this head is generally supposed to be the wild or sea cabbage (*Brassica oleracea*), a plant found near the sea coast of various parts of England and continental Europe, although Alph. de Candolle considers it to be really descended from the two or three allied species which are yet found growing wild on the Mediterranean coast. In any case the cultivated varieties have departed very widely from the original type, and they present very marked and striking dissimilarities among themselves. The wild cabbage is a comparatively insignificant plant, growing from 1 to 2 feet high, in appearance very similar to the corn mustard or charlock (*Sinapis arvensis*), but differing from it in having smooth leaves. The wild plant has fleshy, shining, waved, and lobed leaves (the uppermost being undivided but toothed), large yellow flow-

ers, elongated seed-pod, and seeds with conduplicate cotyledons. Notwithstanding the fact that the cultivated forms differ in habits so widely, it is remarkable that the flower, seed-pods, and seeds of the varieties present no appreciable difference.

CABBALA AND CABBALISTS. See KABBALA.

CABENDA, or CABINDA, a seaport town of Western Africa, in Lower Guinea, 40 miles north of the mouth of the Zaire, on the right bank of the Bele. Population about 16,000.

CABET, ETIENNE (1788-1856), an active French Communist, was born, the son of a cooper, at Dijon in 1788. He chose the profession of advocate without succeeding in it, but ere long became notable as the persevering apostle of republicanism and communism. He assisted in a secondary way in the Revolution of 1830, and obtained a legal appointment in Corsica under the Government of Louis Philippe; but, being dissatisfied with the moderation of the new rule, he began to attack it even in public, and was dismissed. Elected, notwithstanding, to the Chamber of Deputies, he was prosecuted for his bitter criticism of the Government, and obliged to go into exile in England. On the amnesty of 1839, he returned to France, and attracted some notice by the publication of a badly-written and fiercely democratic history of the Revolution of 1789 (4 vols., 1840), and of a social romance, *Voyage en Icarie*, in which he set forth his peculiar views. These works met with some success among the radical working-men of Paris. An opportunity at length occurred of realizing his schemes. Pressed by his friends, he made arrangements for an experiment in communism on American soil. In his journal, *Le Populaire*, he announced the purchase of a considerable tract of land on the Red River, Texas, and a treaty by which Cabet was made the dictator of an intending colony, and the depository of all the funds, community of property being the distinctive principle of the society. Accordingly, in 1848, an expedition of 150 sailed to America; but unexpected difficulties arose and the complaints of the disenchanted settlers soon reached Europe. Cabet, who had remained in France, had more than one judicial investigation to undergo in consequence, but was honorably acquitted. In 1849 he went out in person to America, but on his arrival, finding that the Mormons had been expelled from their city Nauvoo, in Illinois, he transferred his settlement thither. There, with the exception of a journey to France, where he returned to defend himself successfully before the tribunals, he remained, the dictator of his little society. In 1856, however, he was expelled, and died the same year at St. Louis.

CABEZA DEL BUEY (*i.e.*, bullock's head), a town of Spain, in Estremadura, in the province of Badajoz, and 86 miles E S E. from the city of that name. It manufactures woollen cloth, and has a population of 6,500.

CABINET, a conventional, but not a legal term, employed to describe those members of the Privy Council who fill the highest executive offices in the State, and who, by their concerted policy, direct the Government, and are responsible for all the acts of the Crown. The Cabinet now always includes the persons filling the following offices, who are therefore called Cabinet Ministers, viz.: — The First Lord of the Treasury, the Lord Chancellor, the Lord President of the Council, the Lord Privy Seal, the five Secretaries of State, the Chancellor of the Exchequer, and the First Lord of the Admiralty. The Chancellor of the Duchy of Lancaster, the Postmaster General, the First Commissioner of Works, the President of the Board of Trade, the Chief Secretary for Ireland, the President

of the Poor Law Board, and the Vice-President of the Education Committee are sometimes members of the Cabinet, but not necessarily so. Hence the Cabinet must consist of at least eleven members, and it has sometimes included as many as seventeen. But the better opinion appears to be that a large Cabinet is an evil. Mr. Disraeli in 1874 acted wisely in restricting the numbers of his colleagues to eleven besides the Prime Minister. When Lord Grenville in 1806 brought Lord Chief Justice Ellenborough into the Cabinet by combining his judicial office with that of Lord President, the appointment was strongly reprobated, and the experiment has never been repeated. The Master-General of the Ordnance used to have a seat in the Cabinet, and the duke of Wellington sat there for a short time as Commander-in-Chief. Of late years there has been no military officer in the Cabinet, a thing much to be regretted. In a few instances privy councillors of very high standing, as the duke of Wellington, Lord Sidmouth, the marquis of Landsdowne, and Lord Russell, have been summoned to the Cabinet without office. There is no constitutional objection to summoning any privy councillor to the Cabinet by command of the sovereign.

The word "Cabinet," or "Cabinet Council," was originally employed as a term of reproach. Thus Lord Bacon says, in his essay *Of Counsel* (xx.), "The doctrine of Italy and practice of France, in some kings' times, hath introduced Cabinet Councils—a remedy worse than the disease;" and, again, "As for Cabinet Councils, it may be their motto *Plenus rimarum sum*." Lord Clarendon—after stating that, in 1640, when the great Council of Peers was convened by the king at York, the burden of affairs rested principally on Laud, Strafford, and Cottington, with five or six others added to them on account of their official position and ability—adds, "These persons made up the Committee of State, which was reproachfully after called the *Junto*, and enviously then in Court the *Cabinet Council*." And in the Second Remonstrance in January 1642, Parliament complained "of the managing of the great affairs of the realm in *Cabinet Councils*, by men unknown and not publicly trusted." But this use of the term, though historically curious, has in truth nothing in common with modern application of it. It meant, at that time, the employment of a select body of favorites by the king, who were supposed to possess a larger share of his confidence than the Privy Council at large. Under the Tudors, at least from the later years of Henry VIII., and under the Stuarts, the Privy Council was the Council of State or Government. During the Commonwealth it assumed that name.

The Cabinet Council, properly so called, dates from the reign of William III. and from the year 1693, for it was not until some years after the Revolution that the king discovered and adopted two fundamental principles of a constitutional Executive Government, namely, that a ministry should consist of statesmen holding the same political principles and identified with each other; and, secondly, that the ministry should stand upon a parliamentary basis, that is, that it must command and retain the majority of votes in the Legislature. It was long before these principles were thoroughly worked out and understood, and the perfection to which they have been brought in modern times is the result of time, experience, and, in part, of accident. But the result is that the Cabinet Council for the time being is the Government of Great Britain; that all the powers vested in the sovereign (with one or two exceptions) are practically exercised by the members of this body; that all the members of the Cabinet are jointly and severally responsible for all its measures, for if differences of opinion arise

their existence is unknown as long as the Cabinet lasts,—when publicly manifested the Cabinet is an end; and, lastly, that the Cabinet, being responsible to the sovereign for the conduct of executive business, is also collectively responsible to Parliament both for its executive conduct and its legislative measures, the same men being as members of the Cabinet the servants of the Crown, and as Members of Parliament and leaders of the majority responsible to those who support them by their votes and may challenge in debate every one of their actions. In this latter sense the Cabinet has sometimes been described as a Standing Committee of both Houses of Parliament.

This in reality is the form to which the active governing machinery of the British Constitution has now been brought.

Instances are not wanting in history in which the direct action of the sovereign has overthrown a Cabinet, or prevented a Cabinet from being formed. In 1784 George III. dismissed the Coalition Ministry. In 1807 the king also dismissed Lord Grenville's Cabinet, in the teeth of Lord Erskine's declaration of the high Whig doctrine, that the king had handed over every power of government, and even his own conscience, to his responsible advisers. In these instances the Crown succeeded, and the new Parliament ratified the change. Not so in 1834 when William IV. dismissed Lord Melbourne's Cabinet, placed the duke of Wellington for some weeks in sole possession of all the Cabinet offices, and called Sir Robert Peel to power. In 1812 Lord Moira was defeated in the attempt to form a Cabinet by the refusal of the regent to consent to a change in the household; and in 1839 a similar reason was alleged by Queen Victoria to prevent the accession to office of Sir Robert Peel. But though this step was defended and sanctioned by a minute of the Whig Cabinet of the day, it is now generally regarded as unconstitutional, and the objection was never repeated.

One of the consequences of the close connection of the Cabinet with the Legislature is that it is desirable to divide the strength of the ministry between the two Houses of Parliament. Mr. Pitt's Cabinet of 1783 consisted of himself in the House of Commons and seven peers. But so aristocratic a Government would now be impracticable. In Mr. Gladstone's large Cabinet of 1868, eight, and afterwards nine, ministers were in the House of Commons and six in the House of Peers. Great efforts were made to strengthen the ministerial bench in the Commons, and a new principle was introduced, that the representatives of what are called the spending departments—that is, the Secretary of State for War and the First Lord of the Admiralty—should, if possible, be members of the House which votes the supplies. Mr. Disraeli followed this precedent.

Upon the resignation or dissolution of a ministry, the sovereign exercises the undoubted prerogative of selecting the person who may be thought by the Court most fit to form a new Cabinet. In several instances the statesmen selected by the Crown have found themselves unable to accomplish the task confided to them. But in more favorable cases the minister chosen for this supreme office by the Crown has the power of distributing all the political offices of the Government.

In the United States the Cabinet of the President consists of the Secretary of State, Secretary of Treasury, Secretary of War, Secretary of Navy, Secretary of Interior, Postmaster General, Attorney General, and Secretary of Agriculture. The functions of the Cabinet, in its relation to the President, are purely advisory, but each member is the executive chief of his own special department. They are nominated by the President, and hold their offices at his pleasure. The resignation of a

Cabinet is usually the result of difference between the President and its members, and has nothing in common with a similar action on the part of an English Cabinet.

CABIRI, in Mythology, usually identified with the Dioscuri (Castor and Pollux), in common with whom they were styled *magni Dii*, and had the power of protecting life against storms at sea, the symbol of their presence being the St. Elmo fire. The worship of the Cabiri was local and peculiar to the islands of Lemnos, Imbros, and Samothrace, extending also to the neighboring coast of Troy, in which places it appears to have been inherited from a primitive Pelasgic population.

CABLE, a rope or chain, used for connecting a ship with her anchor. Chain cables are generally used, but on account of their weight they are unsuitable for mooring in very deep water, when several lengths of cable would be hanging at the "hawse pipe;" and they cannot be used, also on account of their weight, when it is required to lay an anchor out at some distance from the ship. Hempen cables are, therefore, supplied to all ships as well as chain cables. The sizes, number and lengths of cables carried by ships of the Royal Navy and required by Lloyd's rules to be supplied to merchant ships, are defined by law.

CABOT, SEBASTIAN, the renowned navigator and contemporary of Columbus, was the son of John Cabot, a Venetian merchant, and was born in Bristol, England, while his father was a resident of that city. On the disputed question of his birthplace, Richard Eden (*Decades of the New World*) says Sebastian told him that, when four years old, he was taken by his father to Venice, and returned to England while still very young, "whereby he was thought to have been born in Venice." Stow, in his *Annals*, under the year 1498, styles "Sebastian Gaboto a Genoas sonne, borne in Bristow." Galvano and Herrera also give to England the honor of his nativity. Neither the year of his birth nor that of his death can be stated with precision; conjecture fixes the former event in about 1476. No instructive details of his early life, until he had passed his twentieth year, can now be recovered.

The discoveries of Columbus infused into young Sebastian an ardent desire to emulate his brilliant achievements. Henry VII. resolved to enter the new field of maritime discovery, which had already rewarded Spain with the Antilles; and the Cabots having proposed to the king the project of shortening the voyage to India by sailing west, to them was confided its execution.

The first patent was granted March 5, 1496, to "John Gabote, citizen of Venice; to Lewes Sebastian, and Santius, sonnes of the said John." It empowered them to seek out, subdue, and occupy, at their own charges, any regions which before had "been unknown to all Christians." They were authorized to set up the royal banner, and possess the territories discovered by them as the king's vassals. Bristol was the only port to which they were permitted to return; and a fifth part of the gains of the voyage was reserved to the Crown. The discoverers were vested with exclusive privilege of resort and traffic.

With respect to Lewes and Santius, the chronicles are silent. John and Sebastian sailed from Bristol in the "Matthew" in the following year (1497), and, as now seems probable, returned to England after the first discovery had been made. There is in the account of the Privy Purse expenses of Henry VII. the following entry:—"10th August 1497. To him that found the New Isle, £10.

Although it is probable that the Island of Newfoundland was discovered in this voyage, a careful

scrutiny of the various maps and chronicles sustain the belief that the Cabots saw the mainland of America before any other,—the term *Terra primum vista* having been used to distinguish the continent, or what was believed to form a part of it. The relation of Sebastian does not warrant the inference that the first land seen was an island.

The most precise account of the discovery is from a map drawn by Sebastian Cabot, and engraved in 1549 by Clement Adams, which is known to have hung in Queen Elizabeth's gallery at Whitehall. The notice runs as follows: "In the year of our Lord 1497, John Cabot, a Venetian, and his son Sebastian, discovered that country which no one before his time had ventured to approach, on the 24th of June, about five o'clock in the morning. He called the land *Terra primum visa*, because, as I conjecture, this was the place that first met his eye in looking from the sea. On the contrary, the island which lies opposite the land he called the island of St. John,—as I suppose, because it was discovered on the festival of St. John the Baptist."

On Sebastian Cabot's map of 1544, the original of which is in the Geographical Cabinet of the Imperial Library at Paris (see fac-simile in Jomard's *Monuments de la Géographie*), nothing is designated above the sixtieth parallel. *Prima tierra vista* is delineated between 45° and 50°, with the island St. Juan (corresponding with Prince Edward), within the great gulf at the embouchure of what is plainly the St. Lawrence. The authenticity of the map being accepted, the "land first seen" could be no other than the coast of Nova Scotia, or island of Cape Breton.

A second "patent" to John Cabot, dated 3d February 1498, authorized him to take six English ships, of not more than 200 tons, in any port in the realm, "and them convey and lede to the lande and isles of late found by the said John in oure name and by oure commandment." Before the expedition was ready, John Cabot died, and Sebastian, with a fleet of five vessels, sailed from Bristol in May 1498. It is believed that this is the voyage referred to by Peter Martyr, Gomara, Fabian, and by Sebastian himself in his letter to Ramusio. Cabot, upon falling in with the coast, ascended it as high as latitude 67½°, probably passing into Hudson's Bay. He persevered in the effort to find an open channel to India, until his sailors, appalled by the danger of navigating the ship among icebergs, broke out in open mutiny and compelled him to turn back. He then retraced his course, pausing at Baccalaos to refit; and, after examining the coast as far south as 38°, returned to England. Sebastian took with him in this voyage three hundred men, with the purpose, as Gomara states, of colonizing the newly-found regions. Thevet, French cosmographer, relates that Cabot landed these emigrants where the cold was so intense that nearly the whole company perished, although it was in July. Cabot brought to England three native inhabitants of the countries he had visited; his great achievement was the discovery of eighteen hundred miles of sea-coast of the North American continent.

Except the vague report of a voyage undertaken by him in 1499, nothing more appears relative to Sebastian until 1512, when he is found living at Seville, engaged in revising the Spanish king's maps and charts. The death of Ferdinand put an end to a design to renew the search for a north-west passage to Cathay, and Cabot, who was to have commanded, returned to England. In 1517 he undertook, with Sir Thomas Perte, another voyage,—whether of discovery or conquest in Spanish America is uncertain. In 1518 Sebastian revisited Spain, and was appointed pilot-major. After the conference of Badajos, a squadron was fitted out

under Cabot to pursue Spanish discovery in the Pacific. It set sail in August 1526, but some of his chief officers having spread disaffection in the fleet, Cabot abandoned the original plan as impracticable, and put into the La Plata. He sailed up this river 350 leagues, built a fort at one of the mouths of the Parana, which stream he ascended in boats, and also penetrated some distance up the Paraguay. Failing to obtain the aid he solicited, and weakened by the assaults of the natives, Sebastian was forced to leave the coast for Spain.

He now, for the second time, returned to England, and notwithstanding a demand by the emperor that "he might be sent over to Spain," settled at Bristol. Edward VI., in 1549, granted the now aged seaman a pension of two hundred and fifty marks. Hakluyt states that the office of Grand Pilot of England was created for him. It was at this period that he explained to the king the phenomenon of the variation of the needle. He was active in promoting the expedition of 1553 to Russia, the success of which gave him the life appointment of Governor of the Muscovy Company.

He is supposed to have died in London, in 1557, sixty-one years subsequent to the date of his first commission from Henry VII., and not far from eighty years old.

CABRA, a town of Spain, in the province of Cordova, about twenty-eight miles southeast of that city, situated in a fertile valley near the source of the river of the same name. Population (1890), 15,760.

CABRAL, or CABERA, PEDRO ALVAREZ, the discoverer—after Pinzon—of Brazil, was born about 1460 of a Portuguese family. After Vasco da Gama's first voyage, the King appointed Cabral to the command of a fleet of thirteen vessels, carrying 1,200 men, and bound for the East Indies. He took a course too far westerly, and was carried to the coast of Brazil, of which, on April 25, he claimed possession for the King of Portugal, naming the new country "Terra da Santa Cruz." After sending home one vessel, Cabral sailed for India; but losing seven of his vessels, he landed at Mozambique, on the east coast of Africa, of which he first gave clear information, and sailed thence to Calicut, where he established the first commercial treaty between Portugal and India. He returned with a considerable booty, and dropped anchor at Lisbon, July 31, 1501.

CABUL, or KABUL, in modern days the capital of AFGHANISTAN. The city stands on the right bank of the river called after it, on the fork made by the junction of the Loghar river, where the productive plain, which extends north to the foot of Hindu Kush, narrows rapidly into the gorges from which the streams issue. The city stands at an altitude of 6,396 feet above the sea.

Cabul is about three miles in circuit; it was formerly walled, but now is not so. The mountains surround it pretty closely except where the plain opens to the northeast. It is triangular in form, the Bala-Hissar or Acropolis, in which the Amir resides, forming the southeast angle, and rising about 150 feet above the plain. The old wall had seven gates, of which two alone remain, viz., the Lahori and the Sirdar. Population, 60,000.

CABUL (Kabul) is also the name of the province including the city so called. It may be considered to embrace the whole of the plains called Koh-daman and Beghrum, etc., to the Hindu Kush northward, with the Kohestan or hill country adjoining so far as it is in actual subjection to the Amir's authority.

CACAO. See COCOA.

CACERES, the capital of the province of the same name, in Estremadura, in Spain, twenty miles south of the Tagus, and twenty-four miles west of Truxillo, on a ridge of hills which stretch from east to west. Population, 14,000.

CACHAO, or, as it is variously spelled KACHO, KECHO, HECHO, or KESHO, formerly known as Donking, and now officially as Bacthian, or Bac-king, is the largest city of Anam, and the capital of the province of Tonquin. It is situated on the west side of the Tonquin river, about eighty miles from the sea, in 105° 35' east long., 21° north lat.

CACHE (Fr. hiding-place), in Canada and the western states, a hole dug in the ground for concealing provisions and other articles cumbrous to carry.

CACHEO, or CACHAO, a town of Western Africa in Senegambia, in the land of the Papels, a few miles inland from the mouth of the River Cachao or San Domingo. Population, 15,000.

CACHOEIRA, a town of Brazil, in the province of Bahia, and sixty-two miles northwest from the city of that name, is situated on the River Paraguassa, which is subject to heavy floods. Population, 13,600.

CACONGO, a small kingdom of Western Africa, separated from Congo by the River Zaire. The capital is Kinguela.

CACTUS. This word, applied by the ancient Greeks to some prickly plant, was adopted by Linnæus as the family title of a group of curious succulent or fleshy-stemmed plants, most of them prickly and leafless, some of which produce beautiful flowers, and are now so popular in our gardens that the name has become familiar. As applied by Linnæus, the name *Cactus* is almost conterminous with what is now regarded as the natural order *Cactaceæ*, which embraces several modern genera. It is one of the few Linnæan generic terms which have been abandoned.

The *Cacti* may be described in general terms as plants having a woody axis, overlaid with thick masses of cellular tissue forming the fleshy stems. These are extremely various in character and form, being globose, cylindrical, columnar, or flattened into leafy expansions or thick joint-like divisions, the surface being either ribbed like a melon, or developed into nipple-like protuberances, or variously angular, but in the greater number of the species furnished conspicuously with tufts of horny spines, some of which are exceedingly keen and powerful. These tufts show the position of buds, of which, however, comparatively few are developed. The stems are in most cases leafless, using the term in a popular sense; the leaves, if present at all, being generally reduced to minute scales. In one genus, however, that of *Pereskia*, the stems are less succulent, and the leaves, though rather fleshy, are developed in the usual form. The flowers are frequently large and showy, and are generally attractive from their high coloring. In one group, represented by *Cereus*, they consist of a tube, more or less elongated, on the outer surface of which, towards the base, are developed small and at first inconspicuous scales, which gradually increase in size upwards, and at length become crowded, numerous, and petaloid, forming a funnel-shaped blossom, the beauty of which is much enhanced by the multitude of conspicuous stamens which with the pistil occupy the centre. In another group, represented by *Opuntia*, the flowers are rotate, that is to say, the long tube is replaced by a very short one. At the base of the tube, in both groups, the ovary becomes developed into a fleshy (often edible) fruit, that produced by the *Opuntia* being known as the prickly pear or Indian fig.

CADAHALSO, JOSE DE (1741-1782), a Spanish poet and writer, was born at Cadiz in 1741. He was educated at Paris, and before completing his twentieth year had travelled through Italy, Germany, England, and Portugal, and had studied with care the languages and literatures of these countries. On his return to Spain he entered the army, and rose to the rank of col-

onel. He was killed at the siege of Gibraltar, February 27, 1782.

CADE, JACK, leader of the English insurrection of 1450, was by birth an Irishman. Assuming the name of Mortimer, and the title of Captain of Kent, he marched on London with upward of 15,000 followers, and encamped at Blackheath. The answer was an army, before which Cade retreated to Sevenoaks; there he defeated a detachment, and killed its two leaders. On July 2 he entered London, where for two days he maintained strict order, though he forced the Lord Mayor to pass judgment on Lord Say, one of the king's detested favorites, whose head Cade's men cut off in Cheapside. On the third day some houses were plundered; and that night the citizens held London Bridge against the insurgents. A promise of pardon now sowed dissension among them; they dispersed, and a price was set upon Cade's head. He attempted to reach the coast, but was followed by one Alexander Iden, a Squire of Kent, who on July 12 fought and killed him in a garden, near Heathfield in Sussex.

CADI, an Arabic word signifying a judge or person learned in the law, the title of an inferior judge among the Mohammedan nations. Like the Mollah, or superior judge, he must be chosen from the higher ranks of the priesthood, as all law is founded upon the Koran.

CADILLAC, the county town of Wexford county, Mich., is an important seat of the lumber trade, and contains several machinery factories and other works. Two weekly newspapers are published. Pop., 4,455.

CADIZ, the capital of Harrison county, Ohio, is situated twenty-two miles northwest of Wheeling, W. Va., is a country rich in bituminous coal. Cadiz has good railroad and telegraph facilities, two national banks and one savings bank, two weekly newspapers, and several factories. Population (1890), 2,500.

CADIZ (in Latin *Gades*, and formerly called *Cales* by the English), the capital of a province of the same name in Spain, is built on the extremity of a tongue of land projecting about five miles into the sea, in a direction N. W. from the Isle de Leon, 94 miles by rail south of Seville, and 13 from Xeres. The city, which is six or seven miles in circumference, is surrounded by a wall with five gates, one of which communicates with the isthmus. Seen from a distance off the coast, it presents a magnificent display of snow-white turrets rising majestically from the sea; and for the uniformity and elegance of its buildings, it must certainly be ranked as one of the finest cities of Spain, although, being hemmed in on all sides, its streets and squares are necessarily contracted. Population, 80,000.

CADMIUM, a metal closely allied to zinc. It was discovered in 1817 by Stromeyer and Hermann, independently, but in a similar manner. The former chemist, in the execution of his duties as inspector of pharmaceutical products in Hanover, found a substance, sold as oxide, to be really carbonate of zinc, and, applying to the manufacturer for explanation of the reason of the substitution of the latter product for the former was informed that, although the best zinc, in which no iron could be detected, was employed, the oxide could not be produced without a slight discoloration from oxide of iron. On investigation by Stromeyer, it was found that the discoloration was due not to iron but to the oxide of a new metal, which he succeeded in isolating, and named cadmium, from the old chemical name for zinc oxide (*Cadmia fossilis*). About the same time Hermann, while testing for arsenic in zinc waste, made his discovery of the metal.

Cadmium does not occur in the metallic state in nature, and there is only one definite mineral known which contains it in quantity, namely, the sulphide, or greenockite, which occurs at Bishopstown, in Renfrewshire,

in small isolated crystals of a bright orange-yellow color, belonging to the hexagonal system, in a doleritic rock associated with prehnite. This contains 77.7 per cent. of cadmium and 22.3 per cent. of sulphur, corresponding to the formula CdS , and is isomorphous with vortzite, the rhombohedral form of sulphide of zinc. Although an extremely rare mineral in the pure state, being confined to the single locality mentioned above, sulphide of cadmium is often present in zinc blende, the richest varieties containing 3 per cent. of cadmium. Among these are the yellow radiated blende of Příbram in Bohemia, Eaton in New Hampshire, and Engis and Corfali in Belgium. It is also found in the carbonates and silicates of zinc from most of the localities producing these ores, but in what state of combination is doubtful, as it is not generally found in quantity sufficient to be appreciated by the analysis of samples,—being only discoverable when the ore is treated for zinc on the large scale, in the first products of the reducing processes.

Cadmium is a white metal with a slight bluish tinge by reflected light; it is whiter than lead or zinc, but less so than silver, has a high lustre when polished, and breaks, under a gradual increasing strain, with the fibrous or scaly fracture characteristic of a soft, tough metal. It may be readily crystallized in octohedra, differing in this respect from the allied metal zinc which is rhombohedral. It is somewhat harder than tin, but less so than zinc, and like the former metal it emits a peculiar crackling sound when bent. It is malleable, and may be rolled into thin sheets.

CADOUDAL, GEORGES, a distinguished leader of the Chouans, was born near Auray, in Lower Brittany, where his father was a miller, in 1771. He was among the first to take up arms against the Republic, and soon acquired great influence over the peasants. After an apparent submission in 1796, he renewed the revolt in Brittany in 1799, but was compelled to submit, and to dismiss his forces in February, 1800. Bonaparte recognized his energy and force of character, and endeavored to secure his services, but Cadoudal refused his offers, passed over to England where the Comte d'Artois appointed him a Lieutenant-General, and where, in 1802, he conspired with Pichegru for the overthrow of the First Consul. With this design he went to Paris, but was arrested, condemned, and guillotined, June 25, 1804.

CADMUS, in Greek Legend, was the founder of the town of Thebes originally called Cadmeia, and according to the tradition was a son of Agenor, king of Phoenicia, whence he had proceeded to Greece in search of his sister Europa, but failing to find her had, in obedience to an oracle, settled at Thebes. He there founded a town over which he in time became king, received from the gods Harmonia, a daughter of Ares and Aphrodite, as his wife, by her had a family on whom fell heavy misfortunes, and finally retired with her to Illyria, where they both died in peace, and were transformed into snakes which watched the tomb while their spirits were translated to Elysium.

CADUCEUS, the symbol of office carried by public heralds, by Mercury (Hermes), as herald or messenger of the gods, and by Iris, Victory, and Eirene. It consisted of a staff round which two serpents were twined in a knot, their heads meeting at the top of the staff.

CÆDMON, or CEDMON (the former way of spelling is that of Bede, the latter that of Florence of Worcester), is the name of the earliest Anglo-Saxon or Old English poet of whom we have any knowledge. The meaning of the name has been much disputed.

The few particulars that are known of the life of Cædmon are all to be found in Bede's *Ecclesiastical*

History, a book so well known that an abridgement of them is all that will be necessary here. Cædmon was probably a ceorl, employed under the "villicus" or bailiff of the lands belonging to the monastery of St. Hilda at Whitby. He had arrived at mature age, and had embraced Christianity at the call of the devoted Irishmen who from Iona and from Lindisfarne, through two-thirds of the seventh century, spread the light of faith through the regions of northern England. He used to attend festive meetings; but when the song went round, and the harp was passed into his hands, Cædmon could sing nothing. He fell asleep and dreamed that a person appeared to him, who, calling him by his name, said, "Cædmon, sing me something." On his replying that he could not sing, and that on this account he had left the revellers, the other replied, "Nevertheless, thou shalt sing for me." "What," said Cædmon, "must I sing?" "Sing," he answered, "of the beginning of created beings." Thereupon Cædmon began to sing verses which he had never heard or learned, praising and magnifying the Creator who had made heaven and earth for the children of men.

In the morning he went to the bailiff who was over him and told him what had happened; the bailiff took him to the abbess. St. Hilda assembled a company of pious and learned persons, and before them trial was made of Cædmon's gift. He told his story, and repeated the verses, and they all judged that he had received an inspiration from above. They explained to him then and there a passage from holy writ, and desired him to versify it. He went away and returned the next morning with his task most excellently performed. The abbess then received him "*cum omnibus suis*" (it is not easy to determine whether this phrase applies to his kith and kin or merely to his worldly goods) into the monastery; and there he lived as a monk for the remainder of his life.

CAEN or, as it is called in the old chronicles, CADON, CATHIM, CAHEM, or CAAM, the capital of an arrondissement in the department of Calvados in France. It stands about eighty or ninety feet above the level of the sea, in an extensive valley, on the left bank of the Orne, at the influx of the Odon, nine miles from the English Channel, and 122 west of Paris.

Though Caen is not a town of great antiquity, the date of its foundation is unknown. It existed as early as the ninth century, and when, in 912, Neustria was ceded to the Normans by Charles the Simple, it was a large and important city. Under the dukes of Normandy, and particularly under William the Conqueror, it rapidly increased. It became the capital of Lower Normandy, and in 1346 was besieged and taken by Edward III. of England. It was again taken by the English in 1417, and was retained by them till 1459, when it capitulated to the French, in whose possession it has since continued. In 1793 the city was the focus of the Girondist movement against the Convention. Among the numerous celebrities to whom Caen has given birth may be mentioned Malherbe, Boisrobert, Huet bishop of Avranches, and Tannegui Lefebvre. Population in 1889, 42,041 in the city, and 45,210 in the commune.

CÆRE, called by the Greeks *Agylla*, which is probably an Etruscan name, a city of Southern Etruria, near the coast of the Tyrrhenian Sea. Its site is occupied by the modern Cervetri (*Cære Vetus*), situated in the district of Civita Vecchia, about thirty-two miles from Rome.

CAERLEON, the *Isca Silurum* of the Romans, is situated upon the right bank of the river Usk, about three and one-half miles north of Newport in Monmouthshire. Its name appears to be a corruption of the Latin *Castrum Legionis*, and there can be no doubt that the place was the station of the second Augustan

legion, and ranked as a colony and capital of Britannia Secunda in the period of Roman dominion. The existing remains of ancient Caerleon still *in situ* are unimportant, consisting only of fragments of the city walls and a grass-grown amphitheatre (comprising an area of 222x192 feet), in which the tiers of seats are indistinctly visible. The hamlet on the opposite bank of the river preserves its Roman name of *Ultra Pontem*, and it is probable that the connecting bridge was a pontoon similar in character to that which survived to the close of the last century.

CAERMARTHEN. See CARMARTHEN.

CAERNARVON. See CARNARVON.

CÆSALPINUS, ANDREAS (1519-1603), one of the most distinguished of the Italian natural philosophers of the Renaissance, was born at Arezzo in Tuscany in 1519. Of his family nothing is recorded, nor does he appear to have left any progeny, or to have been married. He seems to have retained his professorship till 1592, when he removed to Rome in attendance on Pope Clement VIII. He died in 1603 at the age of eighty-four.

CÆSAR, the title of the Roman Emperors and of the heirs to the throne, was originally the name of a patrician family of the Julia Gens, one of the oldest in the Roman State, claiming to be descended from Iulus, the son of Æneas. Octavian bore the name as the adopted son of Julius Cæsar, and handed it down to his own adopted son, Tiberius; after whom it was borne by Caligula, Claudius, and Nero. Although the Cæsarian family proper became extinct with Nero, the title of Cæsar was part of the style of the succeeding emperors, usually between Imperator and the personal name, as "Imperator Cæsar Vespasianus Augustus." The name reappears in the *Czar* (or *Tsar*) of Russia, in the *Kaiser* of the "Holy Roman Empire" and the modern Empire of Germany, and in the *Kaisar-i-Hind* or Empress of Hindustan.

CÆSAR, CAIUS JULIUS, was born July 12, 100 B.C., according to others in 102 B.C., of a family who for many years had held high offices in the state. He was the greatest man of the Roman or perhaps of all the ancient world. It is not without reason that his name has remained among us as the title of sovereignty, or that his memory survives as the standard of commanding greatness; yet the very completeness of his character makes it difficult to obtain a clear grasp of his individuality. In every relation of life he attained apparently without effort to the highest excellence, as a citizen, a politician, an orator, a general, a companion, a man of letters, and a far-seeing, organizing statesman. Yet study will make it clear to us that his greatness has not been overrated, and the more we contemplate his position and his work, the less opportunity we shall find for blame or criticism. He entered into active life at a great crisis of his country's history. A strong national individuality, firmness, and unity of character and purpose had gradually won for Rome the supremacy of Latium, of Italy, and of the world. But the qualities which were able to acquire an empire were not able to govern it. The time was now passed when the senate presented an example of dignity and magnanimity, when a sense of law and justice and persistency of aim and object sufficed to extenuate a cruelty which knew no limit but the realization of its will. It was truer now than in the time of Horace that Rome was falling by the weight of its own greatness. The long struggle between the patricians and plebeians for political equality served rather to strengthen than loosen the cohesion of the state. But the nations which lay outside the city could not be assimilated without severe struggles. The equality of Latins and Italians with the citizens of Rome might be

won by the efforts of a demagogue, but could only be assured by an entire change of government. Failure to effect the purposes of government had diminished the sense of responsibility in the ruling class. Jugurtha had been able to discover that Roman virtue was accessible to bribes. The direction of provinces at once gratified and stimulated the avarice of statesmen. The riches of the world which were beginning to flow into the imperial city excited the desire for more. There existed at the same time the demoralization which accompanies the breaking up and abandonment of old principles of conduct, and an unsettled yearning for the adjustment of pressing difficulties. We may credit the Gracchi with a far-seeing grasp of the wants of their country, but they could not but appear to their contemporaries as mischievous revolutionists. Sulla attempted to give new strength and power to a system which had sunk into hopeless decay. Marius was inspired rather with a rough contempt for expedients which could never be successful, than with a patriotic desire to elevate the people from whom he sprung. The impotence of statesmen to understand or to regulate the age led to the employment of violence and bloodshed. A domestic enemy had forced the gates of Rome, and each political victory was sealed with the blood of the vanquished. The senate which had conquered the world was unable to defend itself; it could neither recover its former power nor bring into being a new constitution. It could not exercise the ordinary functions of government without entrusting to a citizen powers which might be turned against its own existence. It is difficult to imagine what would have been the destiny of a world from which the cohesive force which bound it together might at any time be removed. If Rome had perished in this crisis she would have left but a faint impress upon the nations who owned her sovereignty. The long reign of law and order, from which we derive the chief legacies which Rome has left to the modern world, was yet to come. That the newly-founded empire did not fall before the onslaught of an eastern despot, or break up into separate provinces governed by rebellious citizens, is due, as far as we can see, to Julius Cæsar alone. It is difficult to see how such a man could have been produced by the wants of any age, but there is no doubt that the course of future history was marked out in no slight degree by the genius and foresight of this single individual.

Cæsar displayed at the very outset of his career the same versatility, energy, and courage which distinguished him till its close. When ordered by Sulla to put away his wife, who was connected with the Marian party, he refused to obey, although he lost by the refusal his wife's dower, his priesthood, and his fortune. Although compelled to quit Rome to avoid the dictator's anger, he did not deprive his country of his services. His diplomacy served to obtain from Nicomedes, king of Bithynia, a fleet, which was used in the reduction of Mitylene, and by his personal bravery in the siege he won from Marcus Thermus the reward of a civic crown. He served in Cilicia against the pirates, whose extinction was to be the great glory of his rival, and either at this or at a later time (for authorities differ on this point) had an adventure with them, which displays his subtlety and resource. Taken prisoner by them at the island of Pharmacussa he sent the main body of his companions and attendants to seek his ransom. During his stay of forty days, he ingratiated himself with his captors, and promised them in jest that when once set free he would return and crucify them, and he kept his word. When he was released he armed some vessels of Miletus, found the pirates in the anchorage where he had left them, took them into

Pergamus, and handed them over to the civil arm. When a student under Apollonius Molo at Rhodes, on the outbreak of the Mithridatic war, he passed, of his own accord, to the continent, drove the king's general from the province, and restored the shaken allegiance of the subject towns. A Roman citizen of birth was expected not only to be a general and a statesman but an orator. He must be practiced in every branch of the art of government. Cæsar attained distinction in the forum with the same ease as he had won it in the field. He accused Dolabella of extortion in the provinces in 77 B.C., and Antonius of a similar offence in 76 B.C. In neither prosecution was he successful, but he gained in both a reputation for eloquence and public spirit. To perfect himself in oratory he sought the instruction of Apollonius before mentioned, under whom Cicero had also studied, and who had striven with little success to curb the extravagance of his redundant diction. Perhaps it is to him that we owe the massive and monumental eloquence, the pure and chastened taste of the *Commentaries*. The chronology of these events is uncertain, but in 74 B.C. Cæsar returned to Rome, and was elected pontiff and military tribune. Not untried in war and in affairs, tinged with Greek culture but not weakened by it, in the prime of youth and the fulness of fascination, he was fitted in every way to gain the favor of his countrymen, and to play his part in the game of politics, which required then, if ever, an open brow and secret thoughts.

For the next twelve years Cæsar, with the exception of a short absence in Spain as quæstor, remained at Rome. During the whole of this time he lent his assistance to the task of strengthening and reviving the democratic party, which had sunk very low after the death of Marius. He was thus brought constantly into connection with Pompeius, and it is difficult for us to determine whether Cæsar supported Pompeius because he perceived that his ends were those which he himself wished to gain, or whether Pompeius courted the democratic party for the purpose of his own aggrandizement. In 70 B.C. Pompeius, in conjunction with Crassus, repealed the Sullan constitution, and in the measures which were necessary for this purpose he had the full approval and support of Cæsar. The power of the tribunes was restored, that of the senate diminished. The control of the law courts, which Sulla had given back to the senate, and which had been abused to shield from punishment high-born plunderers of the provinces, was now divided among the senate, the equites, who were the great capitalists, and the tribuni ærarii, who represented a still more popular element. Cæsar in this conduct was true to the principles which animated his whole career, a desire to give equality to the citizens, and recognition to the subjects of Rome, and to obliterate as far as possible the scars of civil dissension. In 68 B.C. he lost his aunt and his wife, one the widow of Marius, the other the daughter of Cinna. In the orations which he pronounced over them in the forum, he was able to rehabilitate the reputation of the leaders of his party. At his aunt's funeral he caused busts of Marius to be carried in the procession, and the people were roused to recall at once the greatness of their general, whose memory had been so long proscribed, and the generous courage of his kinsman in restoring it. As the power of the senate became weakened, respect for the old safeguards of the constitution became less strong. It was therefore not unnatural, when Rome was suffering from the attacks of enemies whom she could not quell, that she should invest her former general with an extraordinary command, and seek in new expedients a remedy which the constitution had failed to supply. Such was the origin of the Ga-

binian and Manilian laws, the first of which conferred on Pompeius a command against the pirates of the Mediterranean, while the second gave him control of the Mithridatic war. Never had such power been concentrated in the hands of a single citizen. He was invested with absolute control for three years over the whole of the Mediterranean Sea, from the Straits of Gibraltar to the innermost bays of the Levant, and over the coasts for fifty miles inland. Under him were twenty-five prætors of senatorial rank chosen by himself. He had ample authority for levying troops and raising money. By the Manilian law he obtained in addition command over the whole of the East, "so that there remained scarcely a spot of land within the wide Roman dominions that had not obeyed him." These laws were opposed by the friends of the senate, and by those who still cherished respect for the old constitution of the city. They were supported by Cæsar and by Cicero, and, were carried by the public voice. We need not see in this action of Cæsar's a desire either to get rid of Pompeius as a rival, or to earn future favor by present support; we may rather conclude that he saw more clearly than the statesmen of his time the growth of a new order and the decay of the old, and the necessity of fresh and even perilous expedients to meet wants which had not before arisen.

After the departure of Pompeius, Cæsar held the ædileship with Bibulus. His business in this office was to take charge of the public buildings, to repair the old, to furnish such new ones as were required, and to keep the multitude in good temper by a due magnificence in their national games. This office was to Cæsar the occasion of fresh triumphs. Bibulus supplied the money, but Cæsar showed how it might best be spent, and gained the whole credit of the generosity displayed. He decorated the forum,—that small space under the Capitoline hill, on which every successive master of Rome has for good or for evil left his mark. He built, either at this or at a later time, the basilica Julia, which has again come to light in our generation, the first of those imperial erections which were imitated by his successors, and which extended the long line of colonnades and halls of justice far beyond the narrow limits of the Septimontium. He built porticoes under the Capitol for the reception of works of art, the plunder of Grecian cities; and he struck a deeper chord in the hearts of his countrymen when by his order the trophies won by Marius from barbaric kings and peoples glittered one morning freshly adorned and gilded in the place from which they had been removed by Sulla. The defenceless city was terrified at the number of gladiators which he proposed to exhibit in the Great Games, and restricted him to three hundred and twenty pairs, but he made amends by arming them with accoutrements of silver, an act of magnificence remembered even in times when the city was sated with profusion.

In the following year, 64 B.C., he was concerned in measures which show the consistency of his political character. He supported the agrarian law of Rullus (which, as far as we know its provisions, proposed to settle the poorer citizens in the waste lands of Campania and elsewhere), because, although its provisions might be defective, its principles were good, and calculated to lessen the inequality between the different members of the state. Cicero may, with the responsibility which attached to him as consul, have been right in procuring its rejection as ill-digested and premature. Cæsar's support of the impeachment of Rabirius for the murder of Saturninus thirty seven years before, was perhaps intended to show that party feeling should never be suffered to cover the commission of a crime, to assert again the principles of democracy which had been long un-

popular, and also to deter young aristocrats from imitating the excesses of Sulla. These principles once asserted, there was no need to carry the prosecution to extremities. In the year following, 63 B.C., he was elected Pontifex Maximus, a signal mark of his popularity. This office placed him at the head of the state religion. Although he did not obtain it without bribery, yet we cannot believe that he would have been elected unless the people had felt confidence in the dignity and integrity of his character, and if he had been the frivolous and abandoned libertine which some historians represent him to have been at this time. De Quincey has remarked that we are presented with a touching picture of his home life on the morning of his candidature. His mother Aurelia accompanied him to the portico of the house, with a mingled feeling of hope for his success and fear for his safety, and he answered to her expressed anxieties that he would return a conqueror or a corpse. We may believe that to his mother he owed many of his most commanding qualities. Throughout her life he treated her with deep affection and respect, and we have abundant proof that Cæsar possessed to the full that strong family affection which always accompanies a noble nature, and which the Romans of that day have by some writers been so strangely supposed to have been without.

An event was at hand of sufficient seriousness to try the mettle of the strongest. The conspiracy of Catiline has perhaps been exaggerated by the vanity of Cicero; but allowing for this exaggeration, it threatened serious danger to the state, and it affords a conclusive proof of the impotence of the Roman government at this time. We shall find the closest parallel in the military pronunciamientos of modern Spain. Catiline had probably little design beyond obtaining the best places of government for himself and his friends at any cost. If Cæsar had joined this movement he might have mastered it and directed it to his own purposes; had he been an unprincipled adventurer he might have framed for himself combinations more likely to succeed. There is no proof that Cæsar was an accomplice in this villainy. Probability is against it. What we do know is that on December 5th he spoke against the execution of the conspirators. In this we have evidence of his strong common sense and political foresight. He saw that it was bad policy to break the laws in order to punish their violation. He knew also that the dead alone come back to haunt the living. "If an adequate punishment," he said, "can be devised for these men's offences let it be inflicted; if their offence transcends all punishment, let us punish them by the laws of our country." It would have been well for Cicero if he had followed this advice. Such language was thoroughly consistent in the mouth of a man who had done his best to remedy the excesses of Sulla, from which he himself had suffered, and who had lost no opportunity of inculcating political moderation. The next year, 62 B.C., Cæsar was prætor. At the close of it Pompeius returned from the conquest of Mithridates, and quietly disbanded his army. The time had not arrived for Cæsar to lay aside the toga. In 61 B.C., at the age of forty, he assumed as proprætor his first important military command, and laid the foundation of a reputation as the greatest of generals, which should never be allowed to overshadow his higher merit as a statesman and the regenerator of his country.

Before Cæsar could leave Rome for his province it was necessary that he should clear himself from the load of debt which oppressed him, and this he was enabled to do by the assistance of Crassus. A charge of insolvency has been allowed to weigh too heavily upon the character of Cæsar, and has received too much impor-

tance as a motive for his actions. It can be accounted for by supposing an over-recklessness of means to gain important public ends, and a culpable carelessness in his private interests, which are not without a parallel in statesmen of modern times, whose character is above suspicion. We have little positive information about his campaign in the Peninsula, the main operations of which were carried on in Galicia and Portugal. Cæsar appears to have exhibited on a small field the same qualities which distinguished him in a large sphere. He was proclaimed emperor by his soldiers, was voted a triumph by the senate, and while he added to the riches of the state, was careful to render his own fortune more secure. He was a candidate for the consulship in the following year, and would gladly have conducted his canvas by proxy, while he kept his army outside the gates in readiness for his promised triumph. But Cato and the senate would not permit this violation of the law. Cæsar at once obeyed, surrendered his triumph, and obtained the consulship. He formed at this time an alliance with Pompeius and Crassus, which is generally known as the first triumvirate. It was merely a political union for common purposes, and was not, like the second triumvirate, an organized form of government. Pompeius and Crassus had been enemies, and were now reconciled by Cæsar. Cato, the champion of the senate, could not be included in this alliance, and Cicero was too vacillating in his policy and too weak in character to command the confidence of either of his former friends. The objects of the coalition were not so much to secure the personal aggrandizement of its members, as to form a strong and united front against those who wished to maintain a form of government which had become impossible, and was, therefore hurtful to the state. It is possible that both Pompeius and Cæsar foresaw that under a new constitution Rome would be subject to a single head, while Crassus was not reluctant to join himself to two men, one of whom must be the ruler of the future. The democracy which raised Cæsar to power wished to obtain for its favorite the command of an army which would ensure the preponderance of his counsel in coming changes. Cæsar, himself, conscious of the pressing need of important measures, and the inability of the senate to provide them, was ready with the frankest generosity to work with any one whose ideas were on this point coincident with his own. The alliance was cemented by the marriage of Pompeius to Julia, Cæsar's daughter, while Cæsar married Calpurnia, the daughter of Piso.

Cæsar's colleague in the consulship was M. Bibulus, the devoted servant of the senate, who both as ædile and prætor had submitted as a foil to set off the greatness of his companion. He offered a vain opposition to Cæsar's measures, and when he found that he could not prevent their being carried by the use of the political machinery in his power, he retired to his house and announced his intention of "observing the heavens" during the rest of his consulship, a process which ought technically to have rendered invalid all acts passed during that time. We do not possess a full account of the laws carried by Cæsar while he stood at the head of the state, but we know enough to show us that he used his opportunities to enforce the same political principles which he had always consistently professed. He ordered the proceedings of the senate to be published, and so rendered its deliberations amenable to public opinion. He passed an agrarian law similar to that of Rullus, but without the defects which had procured its rejection. He carried a measure of just relief for the *equites* or capitalists, not so much with a view of gaining their support as to make a fair concession to an important class of the community. He declared Ptolemy, king

of Egypt, and Ariovistus, the German, friends of the Roman people. He made regulations for the better government of the provinces, and remedied the worst abuses under which the provinces groaned. He was the author of a great measure for the suppression of bribery and corruption amongst public functionaries, which were at that time a stigma on the state. Other measures of a similar tendency were carried by his subordinates. The senate had intended that Cæsar, on laying down his office, should be rendered as harmless as possible, and for that reason had assigned to the consuls the charge of woods and forests in Italy. The people, however, were able to protest successfully against the injustice. The tribune Vatirius obtained the passing of a law which gave to Cæsar the province of Cisalpine Gaul or Northern Italy for five years, with three legions; and the senate of its own accord added the charge of Gaul and the Alps with an additional legion. Cæsar thus obtained a field of action worthy of his genius. He stayed near the city just long enough to secure the election of his friends as consuls, and to provide against the repeal of the measures which he had passed, and then set out for the country which has ever since been identified with his name.

It is not our object to describe in detail the marvellous work which occupied Cæsar for the next eight years. No part of his life has been written with greater fulness, nor is there any for which we possess more abundant material. It must suffice to give a short sketch of the masterly campaigns by which a free and chivalrous people were reduced to absolute obedience, new countries were opened up to the knowledge and enterprise of Rome, and a form was given to the development of the civilization of France, of which she has preserved the main features to the present day. In his first campaign (58 B.C.) Cæsar gained two important victories. He defeated at Autun the Helvetii who were leaving Switzerland with the intention of settling themselves on the fertile seaboard of the Atlantic, and forced the greater number of them to return to the homes which they had left. He attacked a nobler foe in the Germans under Ariovistus, the friend of the Roman people, and in the neighborhood of Mülhausen cut them to pieces, and drove the few survivors across the Rhine. This mighty stream now became the boundary of the Roman empire. All central Gaul was quelled by his bold attack, and the Germans were cowed into quietude, but the Belgæ, a mixed race of warlike qualities, remained unsubdued. In the next year (57 B.C.) Cæsar marched against them, and scattered their confederacy to the winds. The Nervii made a better stand, and Cæsar was forced to expose his life, and to fight like a common soldier. But they, too, sustained a crushing defeat, and the submission of the Veneti and the coast cantons to Publius Crassus left only the northern tribes, such as the Morini and Menapii, independent of the Roman rule. The work of Crassus had been imperfectly performed, and in the following year (56 B.C.) the Veneti threw off the yoke. The whole coast from the Loire to the Rhine joined the insurrection. Cæsar hurried from Italy, and taking measures for the security of the north and south, prepared to attack the Veneti by sea. Victorious by sea as by land by new and skilful devices, he disabled their powerful fleet, and sold the defeated captives into slavery to a man. The Morini and Menapii alone remained unconquered, protected more than anything else by the natural strength of their country. Cæsar marched against them, but was forced to desist from the attack. With this exception, the whole of Gaul had been reduced to obedience in three campaigns. Cæsar now turned his arms against the Germans. He cut to pieces the Usipetes and Tenchteri, who had crossed the lower

Rhine, after treacherously depriving them of their leaders, who had come of their own free will into his camp. There is no excuse for this violation of international law, which was very properly rebuked by Cato in the senate; but Cæsar might have replied that the precedents of Roman history had not inculcated a spirit of fairness or forbearance towards alien enemies. He built a bridge across the Rhine, and remained eighteen days on the other bank. The same year (55 B.C.) witnessed his first expedition to Britain, whither he was led partly from curiosity, and partly by a desire to detach from the Celtic confederacy a land which was the sure asylum of political refugees. The islanders made a brave resistance, and Cæsar was compelled to retreat. He was so much dissatisfied with the results of the campaign, that he made great preparations for renewing the attack in 54 B.C. On this occasion he penetrated further into the interior and crossed the Thames, but Cassivellaunus, to whom the defence of his country had been entrusted, followed the Roman army with his war chariots, and successfully impeded their operations. Cæsar, before he left, imposed a tribute and demanded hostages, but it was difficult to conceal that he retired discomfited from a land which he had to all appearance seriously intended to subdue. The next two years witnessed the final struggle of the Gauls to regain their freedom. Inspired by the resistance of the Germans and the Britons, and inflamed by the death of Dumnorix, they determined to make a simultaneous attack on the Roman garrisons, which this winter were scattered more widely than usual. Q. Titurus Sabinus and L. Aurelius Cotta were the first assailed. Deceived by Ambiorix, king of the Eburones, their whole division was annihilated. A similar attack was made upon Q. Cicero in the territory of the Nervii, but Cæsar was near enough to bring assistance. The insurrection was checked and a terrible vengeance exacted from the Eburones. Acco, prince of the Carnutes, was executed by the victors. His death spurred his tribesmen to greater exertions. In the winter of 53-52 B.C. they roused the spirit of their countrymen. The post of honor was held by the Arverni, under their prince Vercingetorix, an heroic leader, whose name casts lustre on this last vigorous but hopeless struggle. A new plan of defence was adopted. Instead of defending every town against the Romans, it was determined to burn those places which could not be held, and to concentrate their forces in those strong positions which gave a good hope of success. Thus the campaign clusters round the names of Avaricum, Gergovia, and Alesia. The first of these towns (Bourges) was taken in the spring of 52 B.C. The second, the capital of the Arverni, was attacked by Cæsar in vain, and an attempt to remedy the disaster led to a more decisive defeat. The star of Cæsar began to pale. The Hædui, who had before hesitated to join the insurrection, now avowed their hostility, and the whole nation rose like one man to cast off the yoke of the invader. The final struggle was concentrated round the hill-town of Alesia. Vercingetorix, faithful to his tactics, took refuge here with 80,000 infantry and 25,000 horse. Cæsar had been able to join his forces with Labienus, and invested the hill on every side. The mighty masses of the Gallic landsturm crowded from all quarter to release their champion. Cæsar was at once besieger and besieged. In this supreme crisis his genius triumphed. The provisions of Alesia were exhausted. Cæsar repulsed the double attack on both his lines, and Vercingetorix, disdaining to fly, delivered himself into the power of his conqueror. Had the result been otherwise, it is possible that Cæsar might have been driven from Gaul, and the floods of barbarians pouring down over Italy would have antici-

pated history by five hundred years. The following year (51 B.C.) saw the final pacification of the country. In eight years Cæsar had done his work most thoroughly. Gaul never afterwards attempted to revolt, but remained a rich and contented member of the Roman empire. On no subject-country was impressed more completely the language, laws, and civilization of its masters. If it had been possible so gradually to extend the bounds of Roman dominion as to convert dangerous hordes of undisciplined tribes into contented allies, Cæsar shows us how it might have been done. Even the patriotism of an emperor of the French cannot but admit that it was better for his country that Cæsar should conquer than Vercingetorix.

Whilst Cæsar had been engaged in the conquest of Gaul, the bands which held the triumvirate together had gradually become loosened. The three members of the coalition had met at Lucca in 56 B.C., and had arranged that Cæsar's command in Gaul should be continued for another five years; that Pompeius and Crassus should be elected consuls for 55 B.C.; and that on the expiration of their office Crassus should have Syria for his province and Pompeius the two Spains. These arrangements were carried out, but in September 54 B.C., Julia, the daughter of Cæsar and the wife of Pompeius, died. A project for a double alliance of a similar kind was rejected by Pompeius. In 53 B.C. Crassus was slain in Parthia. In 52 B.C. it became clear that Pompeius was asserting his independence, was drawing nearer to Cato as an ally, and was becoming more disposed to act as the champion of the senate. From this time till the outbreak of the civil war, it was more and more evident that a collision between the two great rivals was inevitable, although Cæsar did his best to avert the catastrophe. The details of the final quarrel are complicated and difficult to understand. By the law of Vatinius Cæsar's command expired in 54 B.C., by that of Trebonius it was continued till 49 B.C. It is comparatively unimportant whether his *imperium* would determine at the end of February or the end of December in that year. It had been arranged among the triumvirs that Cæsar should be consul in 48 B.C. According to strict Roman law he must announce himself personally as a candidate, which he could not do whilst he was still in command of an army. Pompeius had, in 52 B.C., secured to Cæsar exemption from the restriction by a tribunician law, but there was some doubt whether this had not been rendered invalid by a subsequent enactment. In the same year it had been decreed that no one should hold a governorship until five years had elapsed from his laying down the office of consul or senator. In 51 B.C. the question of appointing a successor to Cæsar came before the senate, and it was finally determined that his command should come to an end on the Ides of November, 49 B.C. The object of the senate was that some interval should elapse between Cæsar's consulship and proconsulship. Cæsar knew that he could not trust himself to the power of his enemies, but he displayed his usual moderation. He gave up the two legions which were demanded from him for the Parthian war, and by means of Curio, whom he had won over to his side, he proposed to the senate that Pompeius and himself should simultaneously disarm. To the surprise of the aristocratic party the motion was carried. Marcellus refused to accept the decision on the plea that Cæsar was bringing his army into Northern Italy. He called on Pompeius to put himself at the head of the legion in Campania, and declare war against the invader. Cæsar made one more ineffectual attempt at compromise. The propositions brought by Curio to the new consuls on January 1, 49 B.C., were contemptuously rejected, and Cæsar was peremptorily ordered to resign his command. Although he

had only one legion with him at Ravenna he could not hesitate. He crossed the frontier of Italy, and arrived at Ariminum.

Cæsar crossed the Rubicon in the middle of January, 49 B.C., and he was murdered on the Ides of March, 44 B.C. During this space of a little over five years he crushed in every part of Europe the armies of his enemies, and laid deep and strong the foundations of the imperial power of his successors. He spent barely fifteen months of this time in Rome. He did not now, as his enemies had expected, march at once upon the capital. He observed that a surer way lay open to him of securing the possession of Italy by seizing the central heart of the peninsula, which in ancient as in modern times has held out delusive hopes to patriot people and rebellious kings of taming the proud tyranny of the Tiber city. Here the solitary church of St. Pelino marks the site of Corfinium, once the destined home of Latin independence, and the city of Aquila languishes under the snows of the Gran Sasso d'Italia, a monument of the vain but chivalrous struggle of the emperors against the popes. Into these upland valleys, lying midway between the two seas, Cæsar dashed with irresistible force, and town after town fell before him and his lieutenants. Pompeius moved slowly towards Brundisium, whither he was followed by the conqueror. Cæsar was unable to prevent the embarkation of his troops for Greece, but when by the end of March he reached Rome he was already the undisputed master of Italy.

In his next operations Cæsar displayed to a marvellous degree his ability and resources, and showed how the success of his projects depended entirely upon his personal exertions. His lieutenants were seldom fortunate; but, like Napoleon, his presence was worth an army, and, like Frederick the Great, he knew how to spring at once from the deepest embarrassments to the triumph of victory. At Ilerda his army was cooped up between two rivers, and all communication with Rome cut off. By a clever stratagem he surrounded Afranius and Petreius, and compelled them to surrender. At Dyrrachium he was in a worse position, encamped on a barren ridge, encompassed by a far superior army on the land side, and cut off from the sea, which was in the power of his enemies. Even when he had received his reinforcements he could not hold his own against greater numbers. Yet he was able to take advantage of the first mistake of Pompeius, and the victory of Pharsalus was crushing and complete. At Alexandria, where his stay is difficult to account for even by the attractions of Cleopatra, he nearly fell a victim to a popular tumult, yet he was no sooner extricated from his difficulties than he marched into Asia, saw and conquered the son of the great Mithridates, and placed the affairs of the East on a basis of security. In Africa he had allowed the Pompeians to attain a dangerous efficiency of organization by his delay at Alexandria, and it was only through the extremest caution that he was enabled to assemble his tardy forces. But the battle of Thapsus deprived the senate of their last and noblest champion, and left Cæsar the master of the Roman world. The capitulation of Ilerda took place in August 49 B.C., the winter of 49-48 B.C. was passed on the coast of Illyria, the battle of Pharsalus was fought on August 9, 48 B.C., and Pharnaces was defeated at Zela on August 2, 47 B.C. Cæsar's stay at Rome was chequered by the mutiny of the legions in Campania, and the difficulty of assembling his troops; yet he was able to land in Africa before the end of 47 B.C., and he won the victory of Thapsus on April 6, 46 B.C. In July of that year he entered Rome as conqueror, and could now find leisure to govern the world which he had subdued.

During four separate days he celebrated four triumphs over Gaul, Egypt, Pontus, and Africa. Vercingetorix, who struggled in vain to save his country, Arsinoë the sister of Cleopatra, and the son of Juba, king of Mauritania, followed his triumphal car. The citizens were publicly feasted at the dictator's expense, a distribution of money was made to the poor and the strange magnificence of the games celebrated in memory of his daughter Julia fulfilled the promise of the splendor of his ædileship. One more struggle was necessary before peace was finally secured. The sons of Pompeius, Cnæus and Sextus, had collected a large army in Spain, which had always been the stronghold of their cause. The battle of Munda, fought on March 17, 45 B.C., resulted in their entire defeat, but Cæsar was compelled to be absent from the capital from the end of 46 B.C. till September 45 B.C.

It may be questioned whether Cæsar was himself anxious to receive the title of king, which his admirers were without doubt desirous to force upon him. Such a title would have added but little to his real power over every department of the state. After the expulsion of the kings the Roman constitution came eventually into such a form that, while every interest was represented, the whole power could never come into the hands of one individual. The two consuls were a check upon each other, and they were themselves subordinate to the senate. The tribunes occupied an entirely different position to the other magistrates, and defended the interests of the mass of the citizens. The senate itself was controlled by the censor, and the working of the political machine was so ordered that a single magistrate could, either by his personal objection, or by a skilful use of divine sanctions, obstruct any measure of a rash or unusual character. The chief officers of the state were occasionally suspended by the appointment of a dictator for extraordinary emergencies, but it had probably never occurred to any statesman that the whole of these well-balanced and often conflicting authorities might come to be concentrated in the person of one man. Yet it was by these means that the republic became a monarchy, and that Cæsar became emperor. He was five times consul and four times dictator, and at his death was dictator elect for life. He had the tribunician power conferred upon him, which, among other advantages, rendered his person inviolable. Instead of the censorship he was invested with the new office of *præfectus morum*, which he used to curb the luxury and extravagance induced by the influx of conquered wealth. His opinion was, as *princeps senatus*, asked first in the senate; his effigy was struck upon the coins. The exaggerated and half-divine honors which the servility of the senate invested added but little to his power, but the title of *imperator*, with which many a successful general had been saluted on the field of battle, was now *prefixed* to his name as a permanent addition, and has remained, together with the family name of him who first bore it, as the title of the highest sovereignty throughout the civilized world.

The complex of authorities thus placed in his hands he used in a manner to justify the confidence of those who entrusted them to him. It is difficult to give an accurate account of his administration. Mommsen, in the brilliant chapter which at present closes his history of Rome, has scarcely distinguished with sufficient care between Cæsar's intentions and his acts, and between his measures and those of his successors. Yet we have ample evidence that much was done and much more conceived. If we follow the authority of Suetonius we find that he reformed the calendar by intercalating three months in the year 46, and making arrangements for the future, which lasted unchanged till the 16th cen-

ture. He increased the number of the senate to nine hundred, and made it more thoroughly representative of all classes and all parts of the empire. He increased the number of the magistrates, did his best to heal the wounds left by the civil war, and reformed the courts of justice. He confined donations of corn to the poorer citizens, and while by the rebuilding of Carthage and Corinth he found a refuge for many who would have starved at home, he did his best to prohibit absenteeism, and to discourage the tillage of the soil of Italy by slaves. He gave the rights of citizenship to men of science and to professors of liberal arts, enforced the laws without favor, and attempted with little success to restrain the luxury of the age. He prepared the way for the work of his successor, who found Rome of brick and left it of marble. He intended to codify the law, and to provide public libraries of Greek and Latin works, the care of which he entrusted to Varro, the most learned of the Romans. He is credited with the design of draining the Pontine marshes, a work yet to be performed; of converting the Fucine lake into a fertile plain, an enterprise begun by Claudius and completed by Prince Torlonia; of piercing the isthmus of Corinth; of making a road from the Adriatic to the Tiber; and further, of subduing the Parthians, and returning through Scythia and Germany into Italy, after extending the limits of the empire to the stream of the ocean.

However this may be, it is certain that at the time of his death he was preparing an expedition against the Parthians. It is useless to speculate whether his absence from the city would have been short or long. There is evidence that he did not feel at his ease in the capital, that he considered his personal work to be accomplished, and that his plans could be better carried out by his successor. Yet nothing can excuse the short-sighted wickedness and folly of those who murdered him. We need not repeat the well-known story, how in the Ides of March 44 B.C., Cæsar was murdered in a meeting of the senate, and fell at the feet of the statue of Pompeius, pierced with wounds from head to foot, only one of which was fatal. There is no reason to believe that the conspiracy had been long in preparation, or that it was motived on the one hand by a desire for personal aggrandizement, or still less, on the other, by a devoted patriotism. It began in spite, and continued in folly. A very slight degree of political foresight might have convinced those who assented to the plot, that the people would not be on their side, and that they would precipitate the very conclusion which they desired to avert. Those who deified Brutus in the French Revolution knew but little of Roman history, or confounded him with the expeller of the Tarquins. Dante is a better judge, whose ardent love of liberty did not blind him to the necessity of a strong and united government for his native land. The divine poet relates to us with an appalling realism, that in the centre of the earth, in the bottom of the pit of hell, Lucifer holds in his three mouths the three greatest malefactors the world has ever seen,—Brutus and Cassius, who betrayed their sovereign and their country, and Judas Iscariot, who betrayed his Master with a kiss.

Of Cæsar's works the Commentaries on the Gallic and Civil wars alone have been preserved. Among recent accounts of his life the most valuable are to be found in Mommsen's *Roman History* and Drumann's *Geschichte Roms*. See also the works of Merivale and Arnold; *Histoire de Cesar*, by Napoleon III.; Froude's *Cæsar*, and *Histoire de Jules Cesar*, by Stoffel (1888).

CÆSAR, SIR JULIUS (1557-1636), a learned civilian, descended by the female line from the Dukes de' Cesarini in Italy, was born near Tottenham in Middlesex.

CÆSAREA, the name of two towns in Palestine:—

I. CÆSAREA PALESTINA, now Kaisaryah, the Roman metropolis of Palestine, thirty miles north of Joppa, and about the same distance northwest of Jerusalem. It was built about 22 B.C. by Herod, on the site of an earlier town called Turris Stratonis.

II. CÆSAREA PHILIPPI, ninety-five miles north of Jerusalem, and about thirty-five southwest of Damascus, situated at the southern base of Mount Hermon, near one of the sources of the Jordan. It has been identified with Baalgad or Beth-Rehob, and was certainly known for a long time as Panium or Pania, the cave at the foot of the mountain being dedicated to Pan.

CÆSAREA, or KAISARIEH, a city in Asiatic Turkey, formerly one of the most important places in Capadocia, and at present the chief town of a sanjak in the province of Karaman, situated on the Kara-su, between two spurs of the Mons Argæus. Population, 10,000.

CÆSAREAN OPERATION (*cædo*, I cut—*cæsus* has from ancient times been the popular name for *Hysterotomy* (*hysteria*, uterus; *tomê*, section). Pliny distinctly alludes to it in his *Natural History* (Lib. VIII. Cap. IX.), saying that Cæsar was so called from being taken by excision out of the womb of his mother, and that such persons were called *Cæsones*. In the case of Julius Cæsar, however, the statement must be regarded, to say the least, as extremely doubtful.

CÆSIUM, an alkaline metal, almost always found with rubidium, was discovered by Bunsen and Kirchhoff in 1860 by spectrum analysis. The metal, isolated for the first time in 1882, is silver white, soft and extensible, and like rubidium is analogous to potassium. Its symbol is Cs, and its atomic weight 133. Its melting point is 26.5°C., and its specific gravity 1.88. It ignites spontaneously in the air, and when thrown on water, acts like sodium, potassium, and rubidium.

CÆSURA, in Prosody, a pause or stop in the line, on the variations in the position of which much of the effect of the rhythm of verse depends.

CAFFARIA. See AFRICA (vol. I. p. 80) and KAFFRARIA.

CAFFEINE, or THEINE $C_8H_{10}N_4O_2H_2O$, is the alkaloid or active principle of coffee and tea. When isolated it forms beautiful white crystals, with a silky lustre, which are soluble in chloroform, water, alcohol, and ether. In large doses caffeine proves fatal to the lower animals, causing convulsions and death. In man, doses of eight to twelve grains produce diuresis, great excitement, anxiety, and even delirium; but it has been of late used medicinally as a powerful stimulant of the heart's action. Caffeine forms a series of salts, of which the *citrate* has come largely into use. One grain given every hour is often found to give great relief in sick-headaches.

CAGE-BIRDS. Birds have been kept from the earliest history of the world to the present time by savages as well as by civilized races. Alexander the Great kept a ring-necked parrakeet in a golden cage of fabulous value; and these birds still bear the name of the famous Greek Emperor. The best talking parrot is the double-fronted, yellow-faced Amazon (*Chrysotis ochrocephala*), which is much hardier than the African gray birds, of which latter species more than 95 per cent. die in the process of acclimatization. There are two varieties of grays—small, from the south coast, and a larger kind from the west of Africa; the latter are the best.

CAGLI (the ancient *Calles*), a walled town of Italy, in the province of Pesaro e Urbino, at the confluence of the Cantiano and Busso, the former of which is crossed there by an ancient Roman bridge. Population, 10,213.

CAGLIARI, the capital of the island of Sardinia, and chief town of its southern province, is situated in the recess of the bay to which it gives its name, not far from the mouth of the River Mulargia. Pop. 34,000.

CAGLIARI, PAOLO. See VERONESE.

CAGLIOSTRO, ALESSANDRO, COUNT (1743-1795), the arch-impostor of modern times, was born at Palermo in 1743. Joseph Balsamo—for such was the count's real name—gave early indications of those talents which afterwards gained for him so wide a notoriety. He received the rudiments of his education at the convent of Cartagirone; where, being employed to read to the monks during dinner he scandalized the good fathers by repeating the names and detailing the adventures of the most notoriously profligate females of his native town. For these and similar misdeeds he was expelled from the convent and disowned by his relations. He now signalized himself by the ingenuity with which he contrived to perpetrate crimes without exposing himself to the risk of detection. He began by forging tickets for the theatres; then he forged a will; he next robbed his own uncle, and ultimately committed a murder. For the last offence he was imprisoned and brought to trial; but through a defect in the evidence, he escaped with his life. On his release he engaged a goldsmith, by name Marano, to assist him in searching for a hidden treasure,—Marano paying 60 oz. of gold in advance to defray expenses. On arriving at the cave where Joseph declared the treasure to be, six devils, prepared beforehand, rushed out upon the goldsmith, beat him soundly, and left him insensible. Dreading the vengeance of Marano, Balsamo quitted Sicily, and visited in succession Greece, Egypt, Arabia, Persia, Rhodes (where he took lessons in alchemy and the cognate sciences from the Greek Althotas), Malta, Naples, Rome, and Venice. At Rome he married a beautiful but unprincipled woman, with whom he travelled, under a variety of names, through the various countries of Europe. He died in the fortress prison of San Leo in 1795.

CAGNOLA, LUIGI, MARQUIS (1762-1833), a celebrated architect, a native of Milan. He was sent at the age of fourteen to the Clementine College at Rome, and afterwards studied at the university of Pavia. In 1806 he was called upon to erect a triumphal arch on the occasion of Eugène Beauharnais's marriage with the princess of Bavaria. The arch was of wood, but was of such beauty that it was resolved to carry it out in marble. The result was the magnificent Arco della Pace in Milan, one of the grandest erections of modern architecture, surpassed into dimensions only by the Arc de l'Étoile at Paris. Among other works executed by Cagnola are the Porta di Marengo at Milan, the Campanile at Ugnano, and the chapel of Santa Marcellina in Milan. He died on the 14th of August 1833.

CAGOTS, a people found in the Basque provinces, Béarn, and Gascony. During the Middle Ages they were popularly looked upon as crétins, lepers, heretics, and even as cannibals. Entirely excluded from all political and social rights, they were not even allowed to enter a church but by a special door, or to remain except in a part where they were carefully secluded from the rest of the worshippers. To partake of the mass was never permitted them. They were compelled to wear a distinctive dress, to which, in some places, was attached the foot of a goose or duck (whence they were sometimes called *Canards*). And so pestilential was their touch considered that it was a crime for them to walk the common road barefooted. The only trades allowed them were those of butcher and carpenter, and their ordinary occupation was wood-cutting. Their language is merely a corrupt form of that spoken around

them; but a Teutonic origin seems to be indicated by their fair complexions and blue eyes. Their crania have a normal development; their cheek-bones are high; their noses prominent, with large nostrils; their lips straight; and they are marked by the absence of the auricular lobules. Upon the last peculiarity great stress is laid by anthropologists, and it is held to point to a Gothic origin. The common opinion of authorities is that this people are descendants of the Visigoths, and M. Michel derives the name from *caas* (dog) and *Goth*. But opposed to this etymology is the fact that the word *cagot* is first found in the *for* of Béarn not earlier than 1551, while the older MSS. call these peoples *Chrétien*s, or *Chrestiaas*, a term which, on this hypothesis, would have its origin from the fact that these Visigoths, left behind in Aquitaine, were Christians, while the Gascons were still Pagans. On the contrary, M. Marca, in his *Histoire de Béarn*, holds that the word signifies "hunters of the Goths," and that the Cagots are descendants of the Saracens. Again, some would make them descendants of the Albigenses; others of crétins (they are sometimes called Crétins); and others of lepers, declaring their name to be connected with the Celtic *caccod* and the Spanish *gafó*. In the laws of Navarre (1704) they are indeed styled *gaffos*, and treated as lepers; but in those of Béarn, they are clearly distinguished from them.

Small communities, believed to be of the same race, and existing in a similar social condition, being classed with them as "*les races maudites*," are to be found in Maine, Anjou, Poitou, and Aunis, under the name of *Colliberts* (a word said by Ducange to be derived from *cum* and *libertus*, and signifying "neither free nor slave"); in Brittany, under the names *Cahets*, *Caqueux*, *Cacous*, *Caquins*, or *Cacvas*; in Auvergne, under that of *Marçons*. Considerable numbers of the Colliberts still live in the *Marais mouillés de la Sèvre*; and the Cagots may be found round Jaca, in Guipuzcoa, in Navarre, at Cherbitua d'Anhauze in the valley of Azun, near Saint-Jean-Pied-de-Port and Saint-Jean-le-Vieux, and in the villages of Agotetchiac, Tailhapé, and Ainchicharburu, but in largest numbers in Labour, in the Basque arrondissement of Bayonne.

CAHORS, a town in the south of France, formerly the capitol of Cahourcin or Upper Quercy, and now of the department of Lot, on the high road between Paris and Toulouse, 358 miles S.W. from Paris, and 60 miles north of Toulouse. Population (1890), 15,600.

CAILLE, NICOLAS LOUIS DE LA. See LA CAILLE.

CAILLIÉ, or CAILLÉ, RENÉ (1799-1838,) a French traveller in Africa, was born in 1799 at Mauzé, and died in 1838. His school education extended no farther than reading and writing; and at the age of sixteen he commenced his career by a voyage to Senegal. But already *Robinson Crusoe* had kindled within him an enthusiastic admiration for the life of the discoverer; and in 1827, having collected 2000 francs by toiling on an indigo plantation, he set out on his most important mission. From Kakunda he travelled east by Cambaya, Kankan, Time, and Tengrera, and north-east by Donasso as far as Galia, through a hitherto unvisited district; and from Galia he passed through the country explored by Mungo Park to Timbuctoo, which he reached on April 20, 1828. He thus won the prize of 10,000 francs offered by the Geographical Society of Paris to the first traveller who should gain exact information of Timbuctoo, to be compared with that given by Mungo Park.

CAIN, the eldest son of Adam and Eve according to the narrative of the Jehovist (Gen. iv.) According to the Biblical narrative (Gen. iv.) Cain was a tiller of the ground, while his younger brother, Abel, was a keeper

of sheep. Enraged at the acceptance of Abel's offering by the Lord, and the rejection of his own, he slew his brother in the field. For this a curse was pronounced upon him, and he was condemned to be a "fugitive and a vagabond" on the earth, a mark being set upon him "lest any finding him should kill him." He took up his abode in the land of Nod, on the east side of Eden, where he built a city which he named after his son Enoch.

A Gnostic sect of the 2d century were known by the name of Cainites. They are first mentioned by Irenæus, who connects them with the Valentinians. They believed that Cain derived his existence from the superior power, and Abel from the inferior power, and that in this respect Cain was the first of a line which included Esau, Korah, the Sodomites, and Judas Iscariot.

CAIRN (in Welsh, *Carne*), a heap of stones piled up in a conical form. In modern times cairns are often erected as landmarks. In ancient times they were erected as sepulchral monuments or tribal and family cemeteries. See BARROWS.

CAIRNES, JOHN ELLIOTT, a distinguished political economist, was born at Drogheda in 1824, and died on the 8th July 1875. After leaving school he spent some years in the counting-house of his father, who was an extensive brewer. His tastes, however, lay altogether in the direction of study, and he was permitted to enter Trinity College, Dublin. He took the degree of B.A. in 1848, and six years later commenced as M.A. After passing through the curriculum of arts he engaged in the study of law and was called to the Irish bar. But he does not appear to have felt any very strong inclination for the legal profession, and during some years he occupied himself to a large extent with contributions to the daily press, treating of the social and economical questions that affected Ireland. The subject to which at this time he devoted most attention was political economy, which he studied with great thoroughness and care. While residing in Dublin he made the acquaintance of Archbishop Whately, who conceived a very high respect for his character and abilities. In 1856 a vacancy occurred in the chair of Political Economy at Dublin founded by Whately, and Cairnes received the appointment. In accordance with the regulations of the foundation, the lectures of his first year's course were published. The book appeared in 1857, with the title *Character and Logical Method of Political Economy*, and did not, perhaps, receive so much attention as it deserved. It follows up and expands J. S. Mill's treatment in the *Essays on some Unsettled Questions in Political Economy*, and forms a most admirable introduction to the study of economics as a science. In it the author's peculiar powers of thought and expression are displayed to the best advantage. Logical exactness, precision of language, and firm grasp of the true nature of economic facts, are the qualities characteristic of this as of all his other works. If the book had done nothing more, it would still have conferred inestimable benefit on political economists by its clear exposition of the true nature and meaning of the ambiguous term law. To the view of the province and method of political economy expounded in this early work the author always remained true, and several of his later essays, such as those on *Political Economy and Land*, *Political Economy and Laissez-Faire*, are but reiterations of the same doctrine.

In 1861 Cairnes was appointed to the professorship of political economy and jurisprudence in Queen's College, Galway, and in the following year he published his admirable work *The Slave Power*, one of the finest specimens of applied economical philosophy. The inherent disadvantages of the employment of slave labor

are exposed with great fulness and ability, and the conclusions arrived at have taken their place among the recognized doctrines of political economy. To a very large extent the opinions expressed by Cairnes as to the probable issue of the war in America were verified by the actual course of events.

During the remainder of his residence at Galway Professor Cairnes published nothing beyond some fragments and pamphlets, mainly upon Irish questions in which he was deeply interested. The most valuable of these papers are the series devoted to the consideration of university education in Ireland.

The last years of his life were spent in the collection and publication of some scattered papers contributed to various reviews and magazines, and in the preparation of his most extensive and important work. The *Political Essays*, published in 1873, comprise all the papers relating to Ireland and its university system, together with some other articles of a somewhat similar nature. The *Essays in Political Economy, Theoretical and Applied*, which appeared in the same year, contain the essays toward a solution of the gold question, brought up to date and tested by comparison with statistics of prices. Among the other articles in the volume the more important are the criticisms on Bastiat and Comte, and the Essays on *Political Economy and Land* and on *Political Economy and Laissez-Faire*, which have been referred to above. In 1874 appeared his largest work, *Some Leading Principles of Political Economy, newly Expounded*, which is beyond doubt a worthy successor to the great treatises of Smith, Malthus, Ricardo, and Mill. It does not expound a complete system of political economy; many important doctrines are left untouched; and in general the treatment of problems is not such as would be suited for a systematic manual. The work is essentially a commentary on some of the principal doctrines of the English school of economists, such as value, cost of production, wages, labor and capital, and international values, and is replete with keen criticism and lucid illustration. While in fundamental harmony with Mill, especially as regards the general conception of the science, Cairnes differs from him to a greater or less extent on nearly all the cardinal doctrines, subjects his opinions to a searching examination, and generally succeeds in giving to the truth that is common to both a firmer basis and a more precise statement. The last labor to which he devoted himself was a republication of his first work on the *Logical Method of Political Economy*, which had long been out of print. The second edition appeared in April, a few months before the author's untimely death.

Taken as a whole the works of Cairnes form the most important contribution to economical science made by the English school since the publication of J. S. Mill's *Principles*.

CAIRNGORM, or CAIRNGORUM, a name popularly applied to a wine-yellow or brown variety of rock crystal found, among other localities, on the Grampian Mountains in the south-east of Banffshire, Scotland, the central peak being called Cairngorum. The color of the crystals, which is due to a minute proportion of iron oxide, varies, passing through those above noted as belonging properly to cairngorms, into a dull grey, smoky quartz, and to a black variety, called morion.

CAIRO (in Arabic, Masr-al-Kahira, or as the lower classes of the population call it, simply Masr), the modern capital of Egypt, occupies the natural centre of the country, being situated on the east bank of the Nile, 12 miles above the apex of its delta, 150 miles by rail from Alexandria, and 80 west from Suez. It is built partly on the plain and partly on the lower slopes of the rocky range of Mokattam, on a spur of which stands the cita-

del, 250 feet above the level of the town. The prospect from the ramparts of this fortress is one of great magnificence and beauty. Below lies the city with its strongly-built walls and lofty towers, its gardens and squares, its palaces and its mosques, in all the beauty of their delicately-carved domes and minarets covered with fantastic tracery, the port of Bulak, the gardens and palace of Shubra, the broad river studded with islands, the valley of the Nile dotted with groups of trees, with the pyramids on the north horizon, the fields, gardens, and villas on the west, and on the east the barren cliffs, backed by an ocean of sand.

As far as the portion within the walls is concerned, Cairo occupies a site of about seven miles in circumference; but during the reign of the khedive (properly *hidiv*), who was born in the city in 1830, it has extended, especially towards the river, so as to have a circuit of at least 8 or 9 miles. Its improvement has kept pace with its extension, and it can no longer be altogether described as little better than a labyrinth of tortuous lanes, narrow unpaved, and continually swept with clouds of dust blown from huge mounds of rubbish outside the walls. New streets have been cut through the more crowded districts; and the Ezbekeeyah, the principal square of the city, which was formerly allowed to lie waste, has been transformed into public gardens with a lake in the centre, while houses and shops of considerable pretensions have sprung up in the neighborhood. Most important of the new streets is the Boulevard Mehemet Ali, which traverses the city in an almost northerly direction from the Citadel to the Ezbekeeyah. Between the old city and the river many new houses have been erected.

The population of Cairo is of a very mingled description, and presents a very picturesque and interesting appearance. About the beginning of this century it was estimated to amount to about 200,000, which was supposed to comprise 121,000 Mahometans, 60,000 Copts, 4,000 Jews, and a number of Franks, Greeks, and Armenians. It now numbers about 350,000, which may be distributed in the following proportions:—285,000 natives, 25,000 Nubians and natives of the Soudan, 10,000 Turks, 30,000 Jews and Levantines, and upwards of 19,000 Europeans. The German and English colonies are both pretty numerous, and possess each its own church.

CAIRO, the capital of Alexander county, Ill., is situated at the junction of the Ohio with the Mississippi river, 180 miles below St. Louis and 365 miles southwest of Chicago. The city is built on a low point of land, which is protected by costly levees. Cairo was an important strategic point during the Civil war, and was a depot for supplies for the Union armies. The city is reached by several railroads, and has considerable river trade. It is a port of entry, and possesses considerable manufactures. Three daily and three weekly papers are published here. Population (1890 census), 10,324.

CAISSON, in engineering work, is a chamber of iron or wood which is used in the construction of subaqueous foundations,—such as those required for the piers of bridges, &c. Its object is the same as that of a coffer-dam, viz., to allow the work to be carried on below the water-level,—but it is used in places where either the water or the permeable soil is too deep to allow a dam to be erected. In cases where the bridge piers are hollow cylinders of iron, they not unfrequently form their own caissons,—their own weight, or that of ballast placed upon them, forcing their lower edges into the ground. The material left within them is dredged up or excavated as they descend.

CAITHNESS, the most northern county of the Scot-

tish mainland, bounded W. and S. by Sutherlandshire, and E. and N. by the Northern Ocean, and has an extreme length of 53 miles, an extreme breadth of 33, a coast line of 105 miles, and an area of 455,708 acres or 712 square miles. The form of Caithness resembles an irregular triangle, having as its greatest side the line of coast on the S.E., stretching from the Ord of Caithness to Duncansby Head. The surface of the county generally is flat and tame, consisting for the most part of barren moors, and being almost entirely destitute of trees. It presents a gradual slope from the north and east upwards to the ridge of hills on the west and south, which separates it from Sutherlandshire, and on the southern boundary, where it is bifurcated, attains considerable elevation.

The early history of Caithness may, to some extent, be traced in the various character of the remains and the diversity of its local nomenclature. Picts' houses, Norwegian names, and Danish mounds attest that the Celts were successively displaced by these different tribes; and the number and strength of its fortified keeps leave us to infer that its annals present the usual record of feuds, assaults, and reprisals. Circles of erect stones, as at Steinster Loch and Bower, and the ruins of Romanist chapels and places of pilgrimage in almost every district, illustrate the changes which have come over its ecclesiastical condition. The most important remains are those of Bucholie Castle, Girnigo Castle, and the tower of Keiss; and on the S.E. coast the castles of Clyth, Swiney, Forss, Latheron, Knockinnan, Berriedale, Achastle, and Dunbeath.

CAIUS, KAYE, or KEYE, Dr. JOHN (1510-73), the founder of Caius College in Cambridge, was born at Norwich in 1510. He died in July, 1573, and was buried in the college chapel. Dr. Caius was a learned, active, and benevolent man.

CAJABAMBA, capital of the Province of Chimborazo, in Ecuador, 102 miles south of Quito, at an elevation of 9,480 feet. Population, 16,000. The former town of *Riobamba*, founded on this site in 1533, was in 1797 overwhelmed by an earthquake in which 30,000 lives were lost.

CAJAZZO, or CAIAZZO, a town of Italy, in the province of Terra di Lavoro, and district of Piedimonte, situated on a height on the north bank of the Volturno, about 11 miles from Capua. Pop., 6,000.

CAJEPUT OIL, a volatile oil obtained by distillation from the leaves of *Melaleuca leucadodendron*, and probably other species. The trees yielding the oil are found throughout the Indian Archipelago, the Malay peninsula, and over the hotter parts of the Australian continent; but the greater portion of the oil is procured from Celebes Island. The name Cajeput is derived from the native *Kayu-puti* or white wood. The oil is prepared from leaves collected in a hot dry day, which are macerated in water, and distilled after fermenting for a night.

CAJETAN, CARDINAL (1469-1534), was born at Cajeta in the kingdom of Naples in 1469. His proper name was Thomas de Vio, but he adopted that of Cajetan from his birthplace. He entered the order of the Dominicans at the age of sixteen, was for some time professor of divinity, and in 1508 became general of the order. For his zeal in defending the Papal pretensions in a work entitled *Of the Power of the Pope*, he obtained the bishopric of Cajeta. He was afterwards raised to the archiepiscopal see of Palermo, and in 1517 was made a cardinal by Leo X. The year following he went as legate into Germany, to quiet the commotions raised by Luther against indulgences; but the Reformer under protection of Frederick elector of Saxony, set him at defiance; for though he obeyed the cardinal's summons

in repairing to Augsburg, yet he rendered all his proceedings ineffectual. Cajetan was employed in several other negotiations and transactions, being as able in business as in letters. He died in 1534.

CALABAR is a district of somewhat indefinite boundaries, situated on the West Coast of Africa, in the Bight of Biafra. The name corresponds to no geographical or political unity, but is convenient as provisionally comprehending a stretch of country of considerable commercial importance. The coast line is frequently regarded as extending from the Nun mouth of the Niger, to the neighborhood of the Cameroon Mountains, and thus includes the estuaries of the Brass River or Tuwon-Toro, the San Nicholas or Kola Toro, the New Calabar, and the Bonny, which are all deltaic branches of the Niger, as well as the San Pedro or Kan Toro, and the important embouchure of the united streams of the Cross River, the Old Calabar and the Great Qua River. The interior of the country is still unexplored, and the inland boundary is left completely vague. The soil of the whole country, for 150 miles or further from the sea, is purely alluvial; and the surface is literally covered with bush except in the very limited areas under cultivation.

CALABAR BEAN, the seed of a leguminous plant, *Physostigma venenosum*, a native of tropical Africa. The plant has a climbing habit like the scarlet runner, and attains a height of about fifty feet, with a stem an inch or two in thickness. The seed pods, which contain two or three seeds or beans, are six or seven inches in length, and the beans are about the size of an ordinary horse bean but much thicker, with a deep chocolate-brown color. They constitute the E-ser-e or ordeal beans of the negroes of Old Calabar, being administered to persons accused of witchcraft or other crimes. In cases where the poisonous material did its deadly work it was held at once to indicate and rightly to punish guilt; but when it was rejected by the stomach of the accused, innocence was held to be satisfactorily established.

CALABASH TREE (*Crescentia cujete*), a small tree belonging to the Bignoniaceæ, common in tropical America, but said to have been introduced from Guinea. The wood of the tree is tough and flexible, but by far the most useful part is the hard shell of the fruit, which, under the name of *calabash*, is much used in place of bottles for holding liquids, and for goblets, cups, water-cans, etc., and in fact furnishes most of the domestic utensils of the natives.

CALABOZO, or CALABOSO, a town of Venezuela, formerly capital of the province of Carácas, but now of that of Guarico, is situated 120 miles south-southwest of the city of Carácas on the left bank of the River Guarico.

CALABRIA, the name given by the Romans to the peninsula at the southeastern extremity of Italy, and now given to the peninsula at the southwestern extremity. The former district was called by the Greeks Iapygia and Messapia, though these terms were variously used, and sometimes also included all the southeast of Italy, from Lucania to the Garganian promontory. In the time of Augustus, Calabria was the district south and east of a line drawn from the neighborhood of Tarentum to that of Brundisium, corresponding to the modern Terre d'Otranto. The principal cities were Tarentum (Taranto), Brundisium (Brindisi) and Hydruntum (Otranto), all of which are ports. The inhabitants were Sallentines and Calabrians or Messapians, both probably of Pre-Hellenic or Pelagic race. Niebuhr, however, considered the Calabrians to be Oscan intruders distinct from the other tribes.

CALAHORRA, the capital of the judicial district and diocese of the same name, in the province of Lo-

grono, Spain, twenty-four miles southeast of Logrono. Population, 8,000.

CALAIS, a town of France, capital of a canton of the same name, in the arrondissement of Boulogne and the department of Pas de Calais, twenty-six miles east-southeast of Dover, and 185 miles by rail from Paris. Calais is a fortress of the first class, and was formerly a place of great strength. Population (1890), 24,000.

CALAIS, a city of Washington county, Me., stands at the head of navigation on the St. Croix river, eighty-two miles east-northeast of Bangor. It is connected with St. Stephens, N. B., by several bridges. Calais has an extensive trade in lumber and some ship-building. It contains a national bank, public library, newspaper offices, and factories. Population 7,227.

CALAMARY, or SQUID, a popular name applied to numerous forms of Cuttle-fish or Cephalopoda, but more especially to the common *Loligo vulgaris*. About two dozen species of *Loligo* are known from all seas, and some fossil forms occur in the Jurassic strata. The common Calamary (*Loligo vulgaris*) has a pinkish or yellowish-white color, with purplish-brown spots, and measures a foot and a half or more in length, not including the arms. It is common in the Atlantic and Mediterranean, swims actively in shoals and is sometimes eaten, or used as bait.

CALAMINE, an ore consisting essentially of carbonate of zinc. The name is said to be derived from the Greek and Latin *calamus*, "a reed," because when fused it adheres to the base of the furnace in a reed-like form.

CALAMINT (*Calamintha*), a genus of Labiatae, nearly allied to balm and thyme. *C. clinopodium* is Wild Basil, and *C. Acinos*, Basil Thyme. The common calamint is found in North America, with several native species.

CALAMIS. See ARCHÆOLOGY, page 440.

CALAMITES, a group of fossil plants, which make their first appearance in the Devonian, occur abundantly in the Carboniferous, and seem to die out in the Permian strata.

CALAMUS, the reed pen which the ancients used in writing, was made of the stem of a reed growing in marshy places, probably *Arundo Donax*, of which the best were obtained from Egypt. The stem was first softened, then dried and cut and split with a knife (*scalprum librarium*), as quill pens are made. To this day the Orientals generally write with a reed (Arab *Kalâm*).

CALAMUS, the traditional name of the Sweet Flag (*Acorus Calamus*), which is, no doubt, the "Calamus Aromaticus" of Roman authors, and probably the sweet calamus and sweet cane of Scripture.

CALAMY, EDMUND (1600-66), a Presbyterian divine, was born at London in February, 1600, and educated at Pembroke Hall, Cambridge, where his opposition to the Arminian party, then powerful in that society, excluded him from a fellowship. He was ejected for nonconformity in 1662, and died October 29, 1666.

CALAMY, EDMUND (1671-1738), grandson of the preceding, was born in London, April 5, 1671. He was educated at a private academy, and studied at the University of Utrecht. After his return to England in 1691 he began to study divinity; and having joined the Nonconformists, he was in 1692 unanimously chosen assistant to Matthew Sylvester at Blackfriars. In 1694 he was ordained. In 1702 he was chosen one of the lecturers in Salter's hall, and in 1703 he succeeded Vincent Alsop as pastor of a large congregation in Westminster. In 1709 Calamy made a tour to Scotland, and had the degree of doctor of divinity conferred on him by the universities of Edinburgh, Aberdeen, and

Glasgow. In 1713 he published a second edition of his *Abridgment of Baxter's History of his Life and Times*. He died June 3, 1732.

CALAS, JEAN (1698-1762), a Protestant merchant at Toulouse, who was barbarously murdered under forms of law which were employed to shelter the sanguinary dictates of ignorant and fanatic zeal. He was born at La Caparède, in Languedoc, in 1698, and had lived forty years at Toulouse. His wife was an Englishwoman of French extraction. They had three sons and three daughters. His son Louis had embraced the Roman Catholic faith through the persuasions of a female domestic who had lived thirty years in the family. In October, 1761, the family consisted of Calas, his wife, Marc-Antoine their son, who had been educated for the bar, Pierre their second son, and this domestic. Antoine being of a melancholy turn of mind, was continually dwelling on passages from authors on the subject of suicide, and one night in that month he hanged himself in his father's warehouse. The crowd, which collected on so shocking a discovery, took up the idea that he had been strangled by his family to prevent him from changing his religion, and that this was a common practice among Protestants. The officers of justice adopted the popular tale, and were supplied by the mob with what they adopted as conclusive evidence of the fact. The fraternity of White Penitents buried the body with great ceremony, and performed a solemn service for the deceased as a martyr; the Franciscans followed their example; and these formalities led to the popular belief in the guilt of the unhappy family. Being all condemned to the rack in order to extort confession, they appealed to the parliament; but this body, being as weak as the subordinate magistrates, sentenced the father to the torture, ordinary and extraordinary, to be broken alive upon the wheel, and then to be burnt to ashes; which diabolical decree was carried into execution on March 9, 1762. Pierre Calas, the surviving son, was banished for life; the rest were acquitted. The distracted widow, however, found some friends, and among them Voltaire, who laid her case before the council of state at Versailles, and the parliament of Toulouse was ordered to transmit the proceedings. These the king and council unanimously agreed to annul; the chief magistrate of Toulouse was degraded and fined; old Calas was declared to have been innocent; and every imputation of guilt was removed from the family.

CALASIO, MARIO DE (1550-1620), a Franciscan, and professor of the Hebrew language at Rome, was born in 1550 at a small town in Abruzzo, from which he took his name, and died in 1620.

CALATAFIMI, a town of Sicily, in the province of Trapani and district of Alcamo, about thirty miles from Palermo. Population (1890), 9,600.

CALATAYUD, a town of Spain, in the province of Saragossa in Aragon, forty-five miles southwest of the city of that name. Population, 10,000.

CALCAR, or KALCKER, JOHN DE (1499-1546), an eminent painter, born at Calcar, in the Duchy of Clèves, in 1499. He was a disciple of Titian at Venice, and perfected himself by studying Raffaele. He imitated those masters with such success as to deceive the most skillful critics. Among his various pieces is a Nativity, representing the angels around the infant Christ, which he arranged so that the light emanated wholly from the child. He died at Naples in 1546.

CALCAREOUS, in chemistry, is the term applied to substances containing much lime (Lat. *calx*). Thus *Calcareous waters* are those which hold in solution much carbonate and sulphate of lime, and which are generally known as hard waters, and form a deposit in

kettles and other vessels when heated therein.—*Calcareous rocks* are those in which lime forms the prevailing element.

CALCAREOUS TUFA, or CALC-SINTER, consist of carbonate of lime, and is a deposition from springs, streams, or underground water, from which it is precipitated partly by the escape of carbonic acid, which acts as a solvent, and partly by evaporation of the water. It is usually white, creamy-white, yellowish, or brownish in color, but other hues occur, and variegated and mottled varieties are not uncommon. Calcareous tufa is abundantly deposited from thermal springs, as in the Yellowstone region. The calcareous incrustations so commonly seen in caverns in limestone rocks are varieties of calcareous tufa. They are known as *Stalactites* and *Stalagmites*.

CALCEOLARIA (Lat. *calceolus*, a little shoe), a South American genus of Scrophulariaceæ ranging along the western slope of the Andes and southward to the islands. Several species have reached the Falkland Islands, and two reached New Zealand.

CALCHAS, the most famous soothsayer among the Greeks at the time of the Trojan war, was the son of Thestor. He foretold to the Greeks the length of time they would be engaged in the siege of Troy, and when the fleet was detained by adverse winds at Aulis, he explained the cause and demanded the sacrifice of Iphigenia. When the Greeks were visited with pestilence on account of Chryseis, he disclosed to them the reason of Apollo's anger. After the return of the Greeks from Troy he is said to have retired to Colophon. According to the story his death was due to chagrin at being surpassed in a trial of soothsaying skill by one Mopsus. It had long been predicted that he should die whenever he met his superior in divination.

CALCIFEROUS EPOCH, one of the subordinate division of the Lower Silurian System of North America. The division is characterized by the presence of calcareous sandstones and limestones.

CALCINATION, or CALCINING, is the process of heating or roasting in furnaces, or in heaps, the various metallic ores. It is resorted to as the first stage in the extraction of the majority of the common metals from their ores, and is essentially a process of oxidation.

CALCITE, CALCAREOUS SPAR, or CALC-SPAR, the name usually given by mineralogists to carbonate of lime, rhombohedral in its crystallization. It differs from aragonite only in crystallization. Calcite is one of the commonest minerals. Marble, for example, is composed of small crystalline granules of this mineral.

CALCIUM (sym. Ca; atomic weight, forty) is the metal present in chalk, stucco, and other compounds of lime. It may be obtained by passing a powerful current of electricity through fused chloride of calcium, CaCl_2 , when the metal separates in minute globules.

CALC-SPAR, or CALCAREOUS SPAR, is the popular name for certain of the crystalline forms of carbonate lime or calcite, containing in 100 parts fifty-six of lime and forty-four of carbonic acid. The name includes only the varieties of calcite which belong to the rhombohedral or hexagonal order, to the exclusion of aragonite, which, having the same composition, belongs to the rhombic or right prismatic system, the two minerals forming a striking example of dimorphism. Calc-spar is also the same in chemical composition as marble, limestone, chalk, stalagmitic deposits, etc., which are among the most abundant ingredients in the rocky masses of the earth.

CALCULATING MACHINES. Mathematicians and astronomers have felt in all ages the irksomeness of the labor of making necessary calculations, and this has led to the invention of various devices for shortening it.

Some of these, such as the Abacus, Napier's Bones (invented by the father of logarithms), and the modern Sliding Rule, are rather aids to calculation than calculating machines. Pascal is believed to have been the original inventor of a calculating machine; its use was limited to addition, multiplication, &c., of sums of money, and as it required the constant intervention of a human operator the results were subject to the ordinary errors of manipulation. After him came the celebrated Leibnitz, Dr. Saunderson, who, blind from his childhood, became professor of mathematics in Cambridge, and others. But all their machines were completely cast into the shade by the wonderful inventions of the late Charles Babbage. He knew well the immense value that absolutely correct tables possess for the astronomer and navigator, and that a machine which could produce them with speed was a very great desideratum. The first calculating machine he invented he called a difference engine, because it was to calculate tables of numbers by the method of differences. By setting at the outset a few figures the attendant would obtain by a mechanical operation a long series of numbers absolutely correct. The difference engine was not intended to answer special questions, but to calculate and then print numerical tables, such as logarithm tables, tables for the *Nautical Almanac*, &c. An interesting account of some of the errors which are found in what are considered reliable tables is given in a paper by Babbage in the *Memoirs of the Astronomical Society*, 1827.

CALCULUS. See INFINITESIMAL CALCULUS, pages 3424 to 3427.

CALCUTTA, the capital of India, and seat of the Supreme Government, is situated on the east bank of the Húglí River. It lies about 80 miles from the seaboard, and receives the accumulated produce which the two great river systems of the Ganges and the Brahmaputra collect throughout the provinces of Bengal and Assam. From a cluster of mud villages at the close of the 17th century, it has advanced with a rapid growth to a densely inhabited metropolis, which, with its four suburbs, contains a population of 892,429 souls.

The history of Calcutta practically dates from the year 1686. In 1596 it had obtained a brief entry as a rent-paying village in the survey of Bengal executed by command of the Emperor Akbar. But it was not till 90 years later that it emerged into history. In 1686 the English merchants at Húglí, finding themselves compelled to quit their factory in consequence of a rupture with the Mughul authorities, retreated about 26 miles down the river to Sutánatí, a village on the banks of the Húglí, now within the boundaries of Calcutta. Their new settlement soon extended itself along the river bank to the then village of Calcutta, and by degrees the cluster of neighboring hamlets grew into the present town. In 1689-90 the Bengal servants of the East India Company determined to make it their headquarters. In 1696 they built the original Fort William, and in 1700 they formally purchased the three villages of Sutánatí, Calcutta, and Gobíndpur from Prince Azim, son of the Emperor Aurungzebe.

The site thus chosen had an excellent anchorage, and was defended by the river from the Marhattás, who harried the districts on the other side. A fort, subsequently rebuilt on the Vauban principle, and a moat, designed to form a semicircle round the town, and to be connected at both ends with the river, but which was never completed, combined with the natural position of Calcutta to render it one of the safest places for trade in India during the expiring struggles of the Mughul empire. It grew up without any fixed plan, and with little regard to the sanitary arrangements required for a

town. Some parts of it lie below water mark on the Húglí, and its low level throughout rendered its drainage a most difficult problem. Until far on in the last century, the jungle and paddy fields closely hemmed in the European mansions with a circle of malaria; the vast plain (*maidán*), with its gardens and promenades, where the fashion of Calcutta now displays itself every evening, was then a swamp during three months of each year; the spacious quadrangle known as Wellington Square was built upon a filthy creek. A legend relates how one-fourth of the European inhabitants perished in twelve months, and during seventy years the mortality was so great that the name of Calcutta, derived from the village of Kálighát, was identified by mariners with Golgotha, the place of a skull.

The chief event in the history of Calcutta is the sack of the town and the capture of Fort William in 1756, by Suráj-ud-Daulá, the Nawáb of Bengal. The majority of the English officials took ship and fled to the mouth of the Húglí River. The Europeans who remained were compelled, after a short resistance, to surrender themselves to the mercies of the young prince. The prisoners, numbering 146 persons, were driven at the point of the sword into the guard-room, a chamber scarcely 20 feet square, with but two small windows. Next morning only 23 were taken out alive, among them Mr. Holwell, the annalist of the "Black Hole." This event took place on June 20, 1756. The Mahometans retained possession of Calcutta for about seven months, and during this brief period the name of the town was changed in official documents to Alinagar. In January 1757 the expedition despatched from Madras, under the command of Admiral Watson and Colonel Clive, regained possession of the city. They found many of the houses of the English residents demolished, and others damaged by fire. The old church of St. John's lay in ruins. The native portion of the town had also suffered much. Everything of value had been swept away, except the merchandise of the Company within the fort, which had been reserved for the Nawáb. The battle of Plassy was fought on June 23d, 1757, exactly twelve months after the capture of Calcutta. Mir Jásar, the nominee of the English, was created Nawáb of Bengal, and by the treaty which raised him to this position he agreed to make restitution to the Calcutta merchants for their losses. The English received £500,000, the Hindus and Mahometans £200,000, and the Armenians £70,000. By another clause in this treaty the Company was permitted to establish a mint, the visible sign in India of territorial sovereignty, and the first coin, still bearing the name of the Delhi emperor, was issued on August 19th, 1757. The restitution money was divided among the sufferers by a committee of the most respectable inhabitants. Commerce rapidly revived, and the ruined city was rebuilt. Modern Calcutta dates from 1757. The old fort was abandoned, and its site devoted to the Customs House and other Government offices. A new fort, the present Fort William, was commenced by Clive, a short distance lower down the River Húglí. It was not finished till 1773, and is said to have cost two millions sterling. At this time also the *maidán*, the park of Calcutta was formed; and the salubrity of its position induced the European inhabitants gradually to shift their dwellings eastward, and to occupy what is now the Chauringhi (Chowringhee) quarter.

From this time the history of Calcutta presents a smooth narrative of advancing prosperity. No outbreak of civil war nor any episode of disaster has disturbed its progress, nor have the calamities of the climate ever done mischief which could not be easily repaired. A great park (*maidán*), intersected by roads, and ornamented by a garden, stretches along the river bank

CALDANI, LEOPOLD MARCO ANTONIO (1725-1813), a distinguished Italian anatomist and physician, was born at Bologna in 1725. After holding various minor appointments, he was chosen assistant to the celebrated anatomist Morgagni at Padua, but disgusted with the envy which his distinguished position drew upon him, he removed to Venice. In 1772 he took possession of the chair of anatomy, vacant by the death of Morgagni, and endeavored, though without success, to found an anatomical museum. He died in 1813, at the age of eighty-eight.

CALDER, SIR ROBERT (1745-1815), Baronet, was born at Elgin, in Scotland, July 2, 1745, (o. s.) He belonged to a very ancient family of Morayshire, and was the second son of Sir Thomas Calder of Muirton. He was educated at the grammar school of Elgin, and at the age of fourteen entered the British navy as midshipman. In 1766 he was serving as lieutenant of the "Essex," under captain the Honorable George Faulkner, in the West Indies. In 1799 he became rear-admiral; and in 1801 he was despatched with a small squadron in pursuit of a French force, under Admiral Gantheaume, conveying supplies to the French in Egypt. In this pursuit he was not successful, and returning home at the peace, he struck his flag. When the war again broke out he was recalled to service, was promoted vice-admiral in 1804, and was employed in the following year in the blockade of the ports of Ferrol and Coruña, in which (amongst other ports) ships were preparing for the invasion of England by Napoleon I. He died at Holt, near Bishop's Waltham, in Hampshire, August 31, 1818.

CALDERON DE LA BARCA, PEDRO (1600-1681), the most eminent representative of the Spanish national drama, was born in Madrid, January 17, 1600. His prosperous life was undistinguished by striking incidents. He received his education at Salamanca, and after having been, as would seem, for some years a retainer or dependant of various noblemen, in 1625 entered the army, where it is hinted that he did not distinguish himself. He had begun to write for the stage in 1622, and in 1636 he was summoned to court, and soon became habitually employed as a writer of court spectacles by King Philip IV., a munificent patron of authors and artists. He was also made a knight of Santiago, and saw some further military service in Catalonia; but in 1651 he entered the church, and from that period wrote nothing but spectacular plays for representation at court, and the religious pieces known as *Autos Sacramentales*. He received various ecclesiastical preferments from Philip IV., and prolonged his days in wealth and honor until his death on May 25th, 1681.

CALDERWOOD, DAVID (1575-1650), an historian of the Church of Scotland, was born in 1575. Calderwood died at Jedburg on the 29th of October 1650, aged seventy-five. He seems to have been a man of unbending integrity, fearless in maintaining his opinions, and uniformly consistent in his professions; but as human virtues are never perfect, his decision of character had some tendency to deviate into that obstinacy from which good men are not always exempted.

CALEDONIA, used in general somewhat loosely to denote the northern portion of Britain during the period of the Roman occupation of the island, had originally a more restrictive application. Caledonia is unquestionably Britain north of the Firth. On turning to the geographer Ptolemy (*circa* 120 A.D.), we fail to meet with the term except as the name of one of the many tribes among which he has parcelled out the "Bretannic Island, Albion." To explain this it is not necessary to assume that Ptolemy was ignorant of the wider acceptance in which Caledonia had recently come to be em-

ployed among the Romans. It is more reasonable to suppose that, as he avowedly drew the materials for his tables from earlier, chiefly from Tyrian sources, he judged it prudent to follow in the main long-recognized authorities. Yet even in Ptolemy we have an indication either of the importance of the Caledonians among their neighbors or of the occasional use of the word as a general name for all the northern tribes. Twice he gives the Deucaledonian Ocean as bounding Britain on the north, that is, after the necessary correction for his mistake in making the whole of the northern part of the island trend to the east instead of to the north, as washing the shores of modern Scotland on the west. Confused and inaccurate in some respects as the Alexandrian geographer's tables are, they, notwithstanding, contain a surprising amount of information regarding the leading features of the coast-line of Britain, the correctness of much of which can be verified by existing names. His account of the tribes and their towns, especially towards the north, is, as might have been expected, much less definite and trustworthy.

The written history of Caledonia as well as of the rest of what is now Scotland commences with the war-like operations in Britain of Agricola, the lieutenant of the Emperor Domitian. In the third year of his command this famous general, who was fortunate enough to have his son-in-law Tacitus as his biographer, determined to attempt the annexation of the northern portion of the island. In the year 84 A.D., Agricola, on resuming the offensive, found himself confronted by a grand union of all the tribes of Caledonia, under a leader whom Tacitus names Galgacus. Might prevailed over right, and the Caledonians were defeated with a loss of 10,000 men. Agricola, now thinking he had pushed his conquests far enough, made no attempt to pursue his beaten foe, but at once led his army back to the territory of the Boresti (*al.* Horesti), whose name is probably preserved in the modern Forfar. Here he gave orders to the commander of his fleet to sail round the island, a feat which the latter accomplished. Soon after he himself was recalled to Rome by his jealous master.

Notwithstanding Agricola's success, the Romans seem to have been quickly obliged to abandon part of their conquests, for in less than forty years (129 A.D.) Hadrian's wall, which ran from the Tyne to the Solway, became the northern limits of their empire in Britain. About twenty years later a second Agricola appeared in the person of Lollius Urbicus, the lieutenant of Antoninus Pius. Almost nothing is known of his actions, but he seems to have once more carried the arms of Rome to the Clyde and Forth, if not beyond them, and to have erected on the line of Agricola's forts the more substantial work now known by the name of the emperor he served (see ANTONINUS, WALL OF). The natives must soon have recovered the lost ground; but scarcely anything is known henceforth of the state of affairs in the north till 208, when, if we may trust the historian Dion Cassius, as abridged by Xiphiline, the Emperor Severus determined to attempt the subjugation of the whole island. At that time the two most powerful tribes of North Britain were the Mæatae, close to Hadrian's wall, and the Caledonians beyond them. Protected by their native fastnesses, the latter offered him such a resistance that, without being able to bring them to a decisive engagement, he lost through disease, fatigue, and the sword, no fewer, it is said, than 50,000 men. Having reached what is termed the northern extremity of the island, but which was in all likelihood merely the northern coast of Aberdeenshire, Severus retreated southward in a very feeble state of health, partly induced by the fatigues he had undergone. A league formed the next year between the Caledonians

and the Mæataë, both of whom had already cast off his authority, led him to make preparations for a new campaign, with the avowed determination of extirpating the whole race. In the midst of these, however, he died at York in 210.

For a whole century afterwards the ancient writers are almost silent regarding Caledonia. In the year 310 we hear for the first time of the Picts; and in 367 Theodosius, an able Roman general, was sent into Britain by Valentinian I. to defend the Britons of the south against the attacks of the men of the north, represented by Ammianus Marcellinus as being the Picts divided into two tribes (the Dicaledonns and the Vecturiones), the Saxons, the Attacotti, and the Scots. He was so far successful that the countries between the walls of Hadrian and Antoninus became yet again a subjected province, named Valentian by Theodosius, in honor of the emperor,—a conquest, however, which can have lasted but a brief period. Henceforth, if we except the effusions of the poet Claudian, the scanty notices of Britain to be met with during several succeeding centuries present the same sad tale of sufferings inflicted on the now effeminate Britons of the south by their warlike neighbors, till at length the settlement of large bodies of Saxons in England changed the aspect of affairs.

The etymology of the word Caledonia has been variously given. *Celydd* (in Welsh, a woody shelter) is the popular derivation; but Isaac Taylor thinks the word may possibly contain the root *gael*, and if so, the Caledonians would be the Gaels of the duns or hills. Equally obscure are the ethnological relations of the people, the most probable opinion being that which regards them as belonging to the British branch of the great Celtic family. A casual inference, hazarded by Tacitus (*Agricola*, chap. xi.), that the red hair and large limbs of the inhabitants of Caledonia point clearly to a German origin, must not be pressed too far. There were probably even in his day Teutonic settlements along the eastern and northern shores, but it seems too much to assume that that race was the dominant one of the Forth. It is a still more doubtful question to what race the Picts belonged. But the discussion of these and other points belongs to the history of SCOTLAND, (*q.v.*)

CALEMBERG, or KALEMBERG, a former principality of Hanover, which was traversed by the Weser and the Leine, and had an area of about 1050 square miles. It derived its name from an ancient castle, now in ruins.

CALENDAR. A calendar is a method of distributing time into certain periods adapted to the purposes of civil life, as hours, days, weeks, months, years, &c.

Of all the periods marked out by the motions of the celestial bodies, the most conspicuous, and the most intimately connected with the affairs of mankind, are the *solar day*, which is distinguished by the diurnal revolution of the earth and the alternation of light and darkness, and the *solar year*, which completes the circle of the seasons. But in the early ages of the world, when mankind were chiefly engaged in rural occupations, the phases of the moon must have been objects of great attention and interest,—hence the *month*, and the practice adopted by many nations of reckoning time by the motions of the moon, as well as the still more general practice of combining the lunar with solar periods. The solar day, the solar year, and the lunar month, or lunation, may therefore be called the *natural* divisions of time. All others, as the hour, the week, and the civil month, though of the most ancient and general use, are only arbitrary and conventional.

DAY.—The true solar day is the interval of time which elapses between two consecutive returns of the same terrestrial meridian to the sun. By reason of the in-

clined position of the ecliptic, and the unequal progressive motion of the earth in its orbit, it is not always of the same absolute length. But as it would be hardly possible, in the artificial measurement of time, to have regard to this small inequality which is besides constantly varying, the *mean solar day* is employed for all civil purposes. This is the time in which the earth *would* make one revolution on its axis, as compared with the sun, if the earth moved at an equable rate in the plane of the equator. The mean solar day is therefore a result of computation, and is not marked precisely by any astronomical phenomenon; but its difference from the true solar or apparent day is so small as to escape ordinary observation.

The subdivision of the day into twenty-four parts, or hours, has prevailed since the remotest ages, though different nations have not agreed either with respect to the epoch of its commencement or the manner of distributing the hours. Europeans in general, like the ancient Egyptians, place the commencement of the civil day at midnight, and reckon twelve morning hours from midnight to mid-day, and twelve evening hours from mid-day to midnight. Astronomers, after the example of Ptolemy, regard the day as commencing with the sun's culmination, or noon, and find it most convenient for the purposes of computation to reckon through the whole twenty-four hours. Hipparchus reckoned the twenty-four hours from midnight to midnight. Some nations, as the ancient Chaldeans and the modern Greeks, have chosen sunrise for the commencement of the day; others, again, as the Italians and Bohemians, suppose it to commence at sunset. In all these cases the beginning of the day varies with the seasons at all places not under the equator. In the early ages of Rome, and even down to the middle of the 5th century after the foundation of the city, no other divisions of the day were known than sunrise, sunset, and mid-day, which was marked by the arrival of the sun between the Rostra and a place called Græcostasis, where ambassadors from Greece and other countries used to stand. The Greeks divided the natural day and night into twelve equal parts each, and the hours thus formed were denominated *temporary hours*, from their varying in length according to the seasons of the year. The hours of the day and night were of course only equal at the time of the equinoxes.

WEEK.—The week is a period of seven days, having no reference whatever to the celestial motions,—a circumstance to which it owes its unalterable uniformity. Although it did not enter into the calendar of the Greeks, and was not introduced at Rome till after the reign of Theodosius, it has been employed from time immemorial in almost all eastern countries; and as it forms neither an aliquot part of the year nor of the lunar month, those who reject the Mosaic recital will be at a loss to assign to it an origin having much semblance of probability. It might have been suggested by the phases of the moon, or by the number of the planets known in ancient times, an origin which is rendered more probable from the names universally given to the different days of which it is composed. In the Egyptian astronomy, the order of the planets, beginning with the most remote, is Saturn, Jupiter, Mars, the Sun, Venus, Mercury, the Moon. Now, the day being divided into twenty-four hours, each hour was consecrated to a particular planet, namely, one to Saturn, the following to Jupiter, the third to Mars, and so on according to the above order; and the day received the name of the planet which presided over its first hour. If, then, the first hour of a day was consecrated to Saturn, that planet would also have the 8th, the 15th, and the 22d hour; the 23rd would fall to Jupiter, the 24th to Mars, and

the 25th, or the first hour of the second day, would belong to the Sun. In like manner the first hour of the 3rd day would fall to the Moon, the first of the 4th day to Mars, of the 5th to Mercury, of the 6th to Jupiter, and of the 7th to Venus. The cycle being completed, the first hour of the 8th day would return to Saturn, and all the others succeed in the same order. According to Dio Cassius, the Egyptian week commenced with Saturday. On their flight from Egypt, the Jews, from hatred to their ancient oppressors, made Saturday the last day of the week.

The English names of the days are derived from the Saxon. The ancient Saxons had borrowed the week from some Eastern nation, and substituted the names of their own divinities for those of the gods of Greece. In legislative and justiciary acts the Latin names are still retained.

Latin.	English.	Saxon
Dies Solis.	Sunday.	Sun's day.
Dies Lunæ.	Monday.	Moon's day.
Dies Martis.	Tuesday.	Tiw's day.
Dies Mercurii.	Wednesday.	Woden's day.
Dies Jovis.	Thursday.	Thor's day.
Dies Veneris.	Friday.	Friga's day.
Dies Saturni.	Saturday.	Seterne's day.

MONTH.—Long before the exact length of the year was determined, it must have been perceived that the synodic revolution of the moon is accomplished in about $29\frac{1}{2}$ days. Twelve lunations, therefore, form a period of 354 days, which differs only by about $11\frac{1}{4}$ days from the solar year. From this circumstance has arisen the practice, perhaps universal, of dividing the year into twelve *months*. But in the course of a few years the accumulated difference between the solar year and twelve lunar months would become considerable, and have the effect of transporting the commencement of the year to a different season. The difficulties that arose in attempting to avoid this inconvenience induced some nations to abandon the moon altogether, and regulate their year by the course of the sun. The month, however, being a convenient period of time, has retained its place in the calendars of all nations; but, instead of denoting a synodic revolution of the moon, it is usually employed to denote an arbitrary number of days approaching to the twelfth part of a solar year.

Among the ancient Egyptians the month consisted of thirty days invariably; and in order to complete the year, five days were added at the end, called supplementary days. They made use of no intercalation, and by losing a fourth of a day every year, the commencement of the year went back one day in every period of four years, and consequently made a revolution of the seasons in 1461 years. Hence 1461 Egyptian years are equal to 1460 Julian years of $365\frac{1}{4}$ days each. This year is called *vague*, by reason of its commencing sometimes at one season of the year, and sometimes at another.

The Greeks divided the month into three decades, or periods of ten days,—a practice which was imitated by the French in their unsuccessful attempt to introduce a new calendar at the period of the Revolution. This division offers two advantages: the first is, that the period is an exact measure of the month of thirty days; and the second is, that the number of the day of the decade is connected with and suggests the number of the day of the month. For example, the 5th of the decade must necessarily be the 5th, the 15th or the 25th of the month; so that when the day of the decade is known, that of the month can scarcely be mistaken. In reckoning by weeks, it is necessary to keep in mind the day of the week on which each month begins.

The Romans employed a division of the month and a method of reckoning the days which appear not a little extraordinary, and must, in practice, have been exceedingly inconvenient.

Instead of distinguishing the days by the ordinal numbers first, second, third, &c., the Romans counted *backwards* from three fixed epochs, namely, the *Calends*, the *Nones*, and the *Ides*. The *Calends* (or *Kalends*) were invariably the first day of the month, and were so denominated because it had been an ancient custom of the pontiffs to call the people together on that day, to apprise them of the festivals, or days that were to be kept sacred during the month. The *Ides* (from an obsolete verb *iduate*, to divide) were at the middle of the month, either the 13th or the 15th day; and the *Nones* were the *ninth* day before the *Ides*, counting exclusively. From these three terms the days received their denomination in the following manner:—Those which were comprised between the *Calends* and the *Nones* were called *the days before the Nones*; those between the *Nones* and the *Ides* were called *the days before the Ides*; and, lastly, all the days after the *Ides* to the end of the month were called *the days before the Calends* of the succeeding month. In the months of March, May, July, and October, the *Ides* fell on the 15th day, and the *Nones* consequently on the 7th; so that each of these months had six days named from the *Nones*. In all the other months the *Ides* were on the 13th and the *Nones* on the 5th; consequently there were only four days named from the *Nones*. Every month had eight days named from the *Ides*. The number of days receiving their denomination from the *Calends* depended on the number of days in the month and the day on which the *Ides* fell. For example, if the month contained 31 days, and the *Ides* fell on the 13th, as was the case in January, August, and December, there would remain 18 days after the *Ides*, which, added to the first of the following month, made 19 days of *Calends*. In January, therefore, the 14th day of the month was called the *nineteenth before the Calends of February* (counting inclusively), the 15th was the 18th before the *Calends*, and so on to the 30th, which was called the third before the *Calends* (*tertio Calendas*), the last being the second of the *Calends*, or the day before the *Calends* (*pridie Calendas*).

YEAR.—The year is either astronomical or civil. The solar astronomical year is the period of time in which the earth performs a revolution in its orbit about the sun, or passes from any point of the ecliptic to the same point again; and consists of 365 days 5 hours 48 min. and 56 sec. of mean solar time. The civil year is that which is employed in chronology, and varies among different nations, both in respect of the season at which it commences and of its subdivisions. When regard is had to the sun's motion alone, the regulation of the year, and the distribution of days into months, may be effected without much trouble; but the difficulty is greatly increased when it is sought to reconcile solar and lunar periods, or to make the subdivisions of the year depend on the moon, and at the same time to preserve the correspondence between the whole year and the seasons.

Of the Solar Year.—In the arrangement of the civil year, two objects are sought to be accomplished,—first, the equable distribution of the days among twelve months; and secondly, the preservation of the beginning of the year at the same distance from the solstices or equinoxes. Now, as the year consists of 365 days and a fraction, and 365 is a number not divisible by 12, it is impossible that the months can all be of the same length, and at the same time include all the days of the year. By reason also of the fractional excess of the

length of the year above 365 days, it likewise happens that the years cannot all contain the same number of days if the epoch of their commencement remains fixed; for the day and the civil year must necessarily be considered as beginning at the same instant; and therefore the extra hours cannot be included in the year till they have accumulated to a whole day. As soon as this has taken place, an additional day must be given to the year.

The civil calendar of all European countries has been borrowed from that of the Romans. Romulus is said to have divided the year into ten months only, including in all 304 days, and it is not very well known how the remaining days were disposed of. The ancient Roman year commenced with March, as is indicated by the names September, October, November, December, which the last four months still retain. July and August, likewise, were anciently denominated Quintilis and Sextilis, their present appellations having been bestowed in compliment to Julius Cæsar and Augustus. In the reign of Numa two months were added to the year, January at the beginning, and February at the end; and this arrangement continued till the end of the year 452 B.C., when the Decemvirs changed the order of the months, and placed February after January. The months now consisted of twenty-nine and thirty days alternately, to correspond with the synodic revolution of the moon, so that the year contained 354 days; but a day was added to make the number odd, which was considered more fortunate, and the year therefore consisted of 355 days. This differed from the solar year by ten whole days and a fraction; but, to restore the coincidence, Numa ordered an additional or intercalary month to be inserted every second year between the 23rd and 24th of February, consisting of twenty-two and three days alternately, so that four years contained 1465 days, and the mean length of the year was consequently $365\frac{1}{4}$ days. The additional month was called *Mercedinus* or *Mercedonius*, from *merces*, wages, probably because the wages of workmen and domestics were usually paid at this season of the year. According to the above arrangement, the year was too long by one day, which rendered another correction necessary. As the error amounted to twenty-four days in as many years, it was ordered that every third period of eight years, instead of containing four intercalary months, amounting in all to ninety days, should contain only three of those months, consisting of twenty-two days each. The mean length of the year was thus reduced to $365\frac{1}{4}$ days, but it is not certain at what time the octennial periods, borrowed from the Greeks, were introduced into the Roman calendar, or whether they were at any time strictly followed. It does not even appear that the length of the intercalary month was regulated by any certain principle, for a discretionary power was left with the pontiffs, to whom the care of the calendar was committed, to intercalate more or fewer days according as the year was found to differ more or less from the celestial motions. This power was quickly abused to serve political objects, and the calendar consequently thrown into confusion. By giving a greater or less number of days to the intercalary months, the pontiffs were enabled to prolong the term of a magistracy, or hasten the annual elections; and so little care had been taken to regulate the year, that, at the time of Julius Cæsar, the civil equinox differed from the astronomical by three months, so that the winter months were carried back into autumn, and the autumnal into summer.

In order to put an end to the disorders arising from the negligence or ignorance of the pontiffs, Cæsar abolished the use of the lunar year and the intercalary month, and regulated the civil year entirely by the sun.

With the advice and assistance of Sosigenes, he fixed the mean length of the year at $365\frac{1}{4}$ days, and decreed that every fourth year should have 366 days, the other years having each 365. In order to restore the vernal equinox to the 25th of March, the place it occupied in the time of Numa, he ordered two extraordinary months to be inserted between November and December in the current year, the first to consist of thirty-three, and the second of thirty-four days. The intercalary month of twenty-three days fell into the year of course, so that the ancient year of 355 days received an augmentation of ninety days; and the year on that occasion contained in all 445 days. This was called the last year of confusion. The first Julian year commenced with the 1st of January of the 46th before the birth of Christ, and the 708th from the foundation of the city.

In the distribution of the days through the several months, Cæsar adopted a simpler and more commodious arrangement than that which has since prevailed. He had ordered that the first, third, fifth, seventh, ninth, and eleventh months, that is January, March, May, July, September, and November, should each have thirty-one days, and the other months thirty, excepting February, which in common years should have only twenty-nine, but every fourth year thirty days. This order was interrupted to gratify the vanity of Augustus, by giving the month bearing his name as many days as July, which was named after the first Cæsar. A day was accordingly taken from February and given to August; and in order that three months of thirty-one days might not come together, September and November were reduced to thirty days, and thirty-one given to October and December. For so frivolous a reason was the regulation of Cæsar abandoned, and a capricious arrangement introduced, which it requires some attention to remember.

The additional day which occurred every fourth year was given to February, as being the shortest month, and was inserted in the calendar between the 24th and 25th day. February having then twenty-nine days, the 25th was the 6th of the calends of March, *sexto-calendas*; the preceding, which was the additional or intercalary day, was called *bis-sexto calendas*,—hence the term *bissextile*, which is still employed to distinguish the year of 366 days. The English denomination of *leap-year* would have been more appropriate if that year had differed from common years in *defect*, and contained only 364 days. In the ecclesiastical calendar the intercalary day is still placed between the 24th and 25th of February; in the civil calendar it is the 29th.

The regulations of Cæsar were not at first sufficiently understood; and the pontiffs, by intercalating every third year instead of every fourth, at the end of thirty-six years had intercalated twelve times, instead of nine. This mistake having been discovered, Augustus ordered that all the years from the thirty-seventh of the era to the forty-eighth inclusive should be common years, by which means the intercalations were reduced to the proper number of twelve in forty-eight years. No account is taken of this blunder in chronology; and it is tacitly supposed that the calendar has been correctly followed from its commencement.

Although the Julian method of intercalation is perhaps the most convenient that could be adopted, yet, as it supposes the year too long by 11 minutes 14 seconds, it could not without correction very long answer the purpose for which it was devised, namely, that of preserving always the same interval of time between the commencement of the year and the equinox. Sosigenes could scarcely fail to know that this year was too long; for it had been shown long before, by the observations of Hipparchus, that the excess of $365\frac{1}{4}$ days above a

true solar year would amount to a day in 300 years. The real error is indeed more than double this, and amounts to a day in 128 years; but in the time of Cæsar the length of the year was an astronomical element not very well determined. In the course of a few centuries, however, the equinox sensibly retrograded towards the beginning of the year. When the Julian calendar was introduced, the equinox fell on the 25th of March. At the time of the Council of Nice, which was held in 325, it fell on the 21st; and when the reformation of the calendar was made in 1582, it had retrograded to the 11th. In order to restore the equinox to its former place, Pope Gregory XIII. directed ten days to be suppressed in the calendar; and as the error of the Julian intercalation was now found to amount to three days in 400 years, he ordered the intercalations to be omitted on all the centenary years excepting those which are multiples of 400. According to the Gregorian rule of intercalation, therefore, every year of which the number is divisible by four without a remainder, is a leap year, excepting the centurial years, which are only leap years when divisible by four after omitting the two ciphers. Thus 1600 was a leap year, but 1700, 1800, and 1900 are common years; 2000 will be a leap year, and so on.

Of the Lunar Year and Luni-solar Periods. — The lunar year, consisting of twelve lunar months, contains only 354 days; its commencement consequently anticipates that of the solar year by eleven days, and passes through the whole circle of the seasons in about thirty-four lunar years. It is therefore so obviously ill-adapted to the computation of time, that, excepting the modern Jews and Mahometans, almost all nations who have regulated their months by the moon have employed some method of intercalation by means of which the beginning of the year is retained at nearly the same fixed place in the seasons.

In the early ages of Greece the year was regulated entirely by the moon. Solon divided the year into twelve months, consisting alternately of twenty-nine and thirty days, the former of which were called *deficient* months, and the latter *full* months. The lunar year, therefore, contained 354 days, falling short of the exact time of twelve lunations by about 8.8 hours. The first expedient adopted to reconcile the lunar and solar years seems to have been the addition of a month of thirty days to every second year. Two lunar years would thus contain 25 months, or 738 days, while two solar years, of $365\frac{1}{4}$ days each, contain $730\frac{1}{2}$ days. The difference of $7\frac{1}{2}$ days was still too great to escape observation; it was accordingly proposed by Cleostratus of Tenedos, who flourished shortly after the time of Thales, to omit the biennary intercalation every eighth year. In fact the $7\frac{1}{2}$ days by which two lunar years exceeded two solar years, amounted to thirty days, a full month, in eight years. By inserting, therefore, three additional months instead of four in every period of eight years, the coincidence between the solar and lunar year would have been exactly restored if the latter had contained only 354 days, inasmuch as the period contains $354 \times 8 + 3 \times 30 = 2922$ days, corresponding with eight solar years of $365\frac{1}{4}$ days each. But the true time of 99 lunations is 2923.528 days, which exceeds the above period by 1528 days, or thirty-six hours and a few minutes. At the end of two periods, or sixteen years, the excess is three days, and at the end of 160 years, thirty days. It was therefore proposed to employ a period of 160 years, in which one of the intercalary months should be omitted; but as this period was too long to be of any practical use, it was never generally adopted. The common practice was to make occasional corrections as they became necessary, in order to preserve the relation between the octennial period and the

state of the heavens; but these corrections being left to the care of incompetent persons, the calendar soon fell into great disorder, and no certain rule was followed till a new division of the year was proposed by Meton and Euctemon, which was immediately adopted in all the states and dependencies of Greece.

The *Metonic Cycle*, which may be regarded as the *chef-d'œuvre* of ancient astronomy, is a period of nineteen solar years, after which the new moons again happen on the same days of the year. In nineteen solar years there are 235 lunations, a number which, on being divided by nineteen, gives twelve lunations for each year, with seven of a remainder, to be distributed among the years of the period. The period of Meton, therefore, consisted of twelve years containing twelve months each, and seven years containing thirteen months each; and these last formed the third, fifth, eighth, eleventh, thirteenth, sixteenth, and nineteenth years of the cycle. As it had now been discovered that the exact length of the lunation is a little more than twenty-nine and a half days, it became necessary to abandon the alternate succession of full and deficient months; and, in order to preserve a more accurate correspondence between the civil month and the lunation, Meton divided the cycle into 125 full months of thirty days, and 110 deficient months of twenty-nine days each. The number of days in this period was therefore 6940. In order to distribute the deficient months through the period in the most equable manner, the whole period may be regarded as consisting of 235 full months of thirty days, or of 7050 days, from which 110 days are to be deducted. This gives one day to be suppressed in sixty-four; so that if we suppose the months to contain each thirty days, and then omit every sixty-fourth day in reckoning from the beginning of the period, those months in which the omission takes place will, of course, be the deficient months.

After the Metonic cycle had been in use about a century, a correction was proposed by Calippus. At the end of four cycles, or seventy-six years, the accumulation of the seven and a half hours of difference between the cycle and 235 lunations amounts to thirty hours, or one whole day and six hours. Calippus, therefore, proposed to quadruple the period of Meton, and deduct one day at the end of that time by changing one of the full months into a deficient month. The period of Calippus, therefore, consisted of three Metonic cycles of 6940 days each, and a period of 6939 days; and its error in respect of the moon, consequently, amounted only to six hours, or to one day in 304 years. This period exceeds seventy-six true solar years by fourteen hours and a quarter nearly, but coincides exactly with seventy-six Julian years; and in the time of Calippus the length of the solar year was almost universally supposed to be exactly $365\frac{1}{4}$ days. The Calippic period is frequently referred to as a date by Ptolemy.

ECCLESIASTICAL CALENDAR. — The ecclesiastical calendar, which is adopted in all the Catholic, and most of the Protestant countries of Europe, is luni-solar, being regulated partly by the solar, and partly by the lunar year, — a circumstance which gives rise to the distinction between the movable and immovable feasts. So early as the 2d century of our era, great disputes had arisen among the Christians respecting the proper time of celebrating Easter, which governs all the other movable feasts. The Jews celebrated their passover on the 14th day of the *first month*, that is to say, the lunar month of which the fourteenth day either falls on, or next follows, the day of the vernal equinox. Most Christian sects agreed that Easter should be celebrated

on a Sunday. Others followed the example of the Jews, and adhered to the 14th of the moon; but these, as usually happened to the minority, were accounted heretics, and received the appellation of Quartodecimnians. In order to terminate dissensions, which produced both scandal and schism in the church, the Council of Nice, which was held in the year 325, ordained that the celebration of Easter should thenceforth always take place on the Sunday which immediately follows the full moon that happens upon, or next after, the day of the vernal equinox. Should the 14th of the moon, which is regarded as the day of full moon, happen on a Sunday, the celebration of Easter was deferred to the Sunday following, in order to avoid concurrence with the Jews and the above-mentioned heretics. The observance of this rule renders it necessary to reconcile three periods which have no common measure, namely, the week, the lunar month, and the solar year; and as this can only be done approximately, and within certain limits, the determination of Easter is an affair of considerable nicety and complication. It is to be regretted that the reverend fathers who formed the Council of Nice were not advised to abandon the moon altogether, and appoint Easter to be celebrated on the first or second Sunday of April. The ecclesiastical calendar would in that case have possessed all the simplicity and uniformity of the civil calendar, which only requires the adjustment of the civil to the solar year; but they were probably not sufficiently versed in astronomy to be aware of the practical difficulties which their regulation had to encounter.

Reformation of the Calendar.—The ancient church calendar was founded on two suppositions, both erroneous, namely, that the year contains $365\frac{1}{4}$ days, and that 235 lunations are exactly equal to nineteen solar years. It could not therefore long continue to preserve its correspondence with the seasons, or to indicate the days of the new moons with the same accuracy. About the year 730 the venerable Bede had already perceived the anticipation of the equinoxes, and remarked that these phenomena then took place about three days earlier than at the time of the Council of Nice. Five centuries after the time of Bede, the divergence of the true equinox from the 21st of March, which now amounted to seven or eight days, was pointed out by John of Sacrobosco, in a work published under the title *De Anni Ratione*; and by Roger Bacon, in a treatise *De Reformatione Calendarii*, which, though never published, was transmitted to the Pope. These works were probably little regarded at the time; but as the errors of the calendar went on increasing, and the true length of the year, in consequence of the progress of astronomy, became better known, the project of a reformation was again revived in the 15th century; and in 1474 Pope Sixtus IV. invited Regiomontanus, the most celebrated astronomer of the age, to Rome, to superintend the reconstruction of the calendar. The premature death of Regiomontanus caused the design to be suspended for the time; but in the following century numerous memoirs appeared on the subject, among the authors of which were Stöffler, Albert Pighius, John Schöner, Lucas Gauricus, and other mathematicians of celebrity. At length Pope Gregory XIII. perceiving that the measure was likely to confer a great éclat on his pontificate, undertook the long-desired reformation; and having found the Governments of the principal Catholic states ready to adopt his views, he issued a brief in the month of March 1582, in which he abolished the use of the ancient calendar, and substituted that which has since been received in almost all Christian countries under the name of the *Gregorian Calendar* or *New Style*. The author of the system adopted by Gregory was Aloysius Lilius, or Luigi Lilio Ghiraldi, a learned astronomer and phy-

sician of Naples, who died, however, before its introduction; but the individual who most contributed to give the ecclesiastical calendar its present form, and who was charged with all the calculations necessary for its verification, was Clavius, by whom it was completely developed and explained in a great folio treatise of 800 pages, published in 1603, the title of which is given at the end of this article.

It has already been mentioned that the error of the Julian year was corrected in the Gregorian calendar by the suppression of three intercalations in 400 years. In order to restore the commencement of the year to the same place in the seasons that it had occupied at the time of the Council of Nice, Gregory directed the day following the feast of St. Francis, that is to say the 5th of October, to be reckoned the 15th of that month. By this regulation the vernal equinox which then happened on the 11th of March was restored to the 21st. From 1582 to 1700 the difference between the old and new style continued to be ten days; but 1700 being a leap year in the Julian calendar, and a common year in the Gregorian, the difference of the styles during the 18th century was eleven days. The year 1800 was also common in the new calendar, and, consequently, the difference in the present century is twelve days. From 1900 to 2100 inclusive it will be thirteen days.

CALENDER, a mechanical engine employed for dressing and finishing cloths and various descriptions of fabrics, preparatory to sending them into the market. It is also used by calico-printers to prepare the surface of their cloths for the operations of printing. The first object of calendering is to produce in the cloth as perfect extension and smoothness of the surface as can be attained,—so that no wrinkle or doubled folding may remain in it. The second end attained by the calendering of cloth is the compression of the yarn or threads of which the texture is composed, which in some degree divests them of their cylindrical shape, and reduces them to a degree of flatness, which, by bringing them more closely into contact with each other, gives to the fabric a greater appearance of closeness and strength than it would otherwise possess. The operation of the calender also improves the superficial appearance, by flattening down all knots, lumps, and other imperfections, from which no material from which cloth is fabricated can ever be entirely freed during the previous processes of spinning and weaving. And, thirdly, in certain fabrics it is desirable that cloth should receive, by means of friction, an additional lustre of polish, which is distinguished by the appellation of glazing. For the accomplishment of these objects the agencies on which the calenderer has to rely are moisture, heat, pressure, and friction, and these he variously combines to produce many different effects.

The term calender, which really means only the chief mechanical engine employed, gives the general name to the finishing establishments where all the varied operations of cloth-lapping are carried on; and it is as usual to say that goods are *packed* as that goods are *dressed* at a calender. The common domestic smoothing-iron may be regarded as a form of calendering utensil; as is also the old-fashioned domestic mangle, which consists of a cylinder applied to a plane, upon which it is rolled backward and forward, until some degree of smoothness is produced by this reciprocating motion. A form of mangle, consisting of an enormously heavy cylinder, which is worked forwards and backwards over a plain surface, is still used in calendering establishments for the finishing of very heavy linens and similar goods.

The smoothing calender completes the substitution of cylindrical for plane surfaces, all the parts which operate upon the cloth being of that form. This ingenious

engine, which was introduced into Britain from Flanders and Holland during the persecution of the Huguenots, has, since its introduction and adoption, undergone no very material or important alteration or improvement in point of theoretical principle; nor, until the extension of the cotton manufacture had introduced a general spirit of mechanical improvement, were any great advances made in the practical applications of it.

CALEPINO, AMBROGIO (1435-1511), an Augustine monk, born at Bergamo in 1435, was descended of an old family of Calepio, whence he took his name. He devoted his whole life to the composition of a polyglott dictionary, first printed at Reggio in 1502. This gigantic work was afterwards augmented by Passerat and others. The most complete addition, published at Basel in 1590, comprises no fewer than eleven languages. The best edition is that published at Padua in seven languages in 1772. Calepino died blind in 1511.

CALHOUN, JOHN CALDWELL (1782-1850), a leading politician of the United States, was grandson of an Irish Presbyterian, who founded Calhoun settlement, in the district of Abbeville, South Carolina. It was there that John Calhoun was born in 1782. For some years he assisted his widowed mother in the management of her farm, but at the age of eighteen he commenced to study for the bar. He graduated with honors at Yale College, and spent eighteen months at Litchfield, at that time the only law school in the country. He then returned to practice in his native district of Abbeville. While there, in June 1807, the searching of the Chesapeake having aroused strong feeling in America, Calhoun drew up for a public meeting a resolution expressive of indignation against Great Britain, and supported it in a speech of such power that he was soon after elected a member of the legislature, and in November 1811, became member of Congress, where he continued to be an enthusiastic and prominent adherent of the war party. For seven years (commencing with 1817) he acted with credit as secretary of war under Monroe; in 1825 he became Vice-President of the United States under J. Quincy Adams; and in 1829 he was re-elected under General Jackson. He now began to be looked upon as a champion of the South; and, though he had supported the protective tariff of 1816, he became an eager advocate of free trade,—that policy being, even popularly, recognized as specially advantageous to the cotton-growing States. He is, however, best known as a strenuous defender of slavery, and as the author of a doctrine to which the Civil War may be traced,—the doctrine of “nullification,” according to which each State has the right to reject any act of Congress which it considers unconstitutional. This view was in 1829 adopted by the legislature of his native State, and drawn up in a document, mainly prepared by Calhoun, which was known as the “South Carolina Exposition,” and which was approved by Virginia, Georgia, and Alabama. In 1832 the legislature of South Carolina carried the theory into practice by passing laws nullifying the obnoxious tariff of that year; but its opposition was crushed by the firmness of General Jackson, who declared that he would resort to force, if necessary. The most important of the other political acts of Calhoun are his defence of the right of veto which belongs to the president, his advocacy of the annexation of Texas, and his maintenance of the cause of peace, when war with Great Britain was threatened by the claims of the United States to Oregon. He died at Washington on the 31st March 1850. His works with, memoir, were published posthumously in 6 vols. in 1853-4, by Richard K. Cralle, who had been his amanuensis. They include a dissertation *On the Constitution and Government of the United States*; and from this book we learn that

he advocated the election of two presidents, one by the free and another by the slave States, the consent of both of whom should be essential to the passing of any law. Calhoun's speeches were always directly to the point, clear, and forcible, while he seldom indulged in the imaginative or purely rhetorical. The integrity and worth of his character have been spoken of in the highest terms even by political opponents.

CALICO-PRINTING is the process of imprinting on textile fabrics patterns of one or more colors on a white or colored ground. Though, as the name implies, the art is directed primarily, as it is by far most extensively, to calico or cotton textures, the same methods of ornamentation are also employed for certain woollen, linen, and silk fabrics, and the process of printing is also applied to unwoven yarns, notably in the case of worsted yarns, intended for use of weaving of tapestry carpets. But as certain of the processes employed for printing cotton agree essentially with those used for woollen and silk fabrics, it will be unnecessary here to refer specially to any other than the methods employed in the printing of calico proper.

There is a curious passage in *Pliny's Natural History* (xxxv. 42), from which it is evident that calico-printing in his time (the 1st century) was understood and practiced in Egypt. The following is a translation of this passage:—

“There exists in Egypt a wonderful method of dyeing. The white cloth is stained in various places, not with dye-stuffs, but with substances which have the property of absorbing (fixing) colors. These applications are not visible upon the cloth; but when the pieces are dipped into a hot caldron containing the dye, they are drawn out an instant after dyed. The remarkable circumstance is, that though there be only one dye in the vat, yet different colors appear on the cloth; nor can the colors be afterwards removed. A vat which would of itself only confuse the colors on cloth previously dyed, in this way imparts several colors from a single dye-stuff, painted as it boils.” It is evident enough that the substances employed to stain the cloth, as Pliny expresses it, were different mordants, which served to fix the dye upon the cloth. Thus if we suppose certain parts of a piece of cotton to be impregnated with alumina, and the cloth afterwards dyed with madder, after the clearing, those parts only impregnated with the mordant would retain their red color, while the remaining parts will continue white.

The general opinion is that this ingenious art originated in India, and from that country made its way into Egypt. Whether this notion be well or ill founded, it is certain that calico-printing was known and executed by the Indians at a very early period. Their colors were beautiful and fast, and the varieties of pattern and the number of colors which they knew how to fix on different parts of the cloth gave to their printed calicoes a beauty and a value of no ordinary kind; but their processes are so tedious and so clumsy that they could be put in practice only where labor was exceedingly cheap.

It was not till towards the close of the 17th century that calico-printing was introduced from India into Europe, having probably been practiced first in Holland, to which country a knowledge of the art was carried by the Dutch East India Company. Evidence exists which shows that calico-printing was commenced in the neighborhood of London so early as the year 1676, and there the art continued long to be practiced. In 1738 it extended to Scotland, and took firm root in the country around Glasgow, but it was not till 1764 that it was introduced to what is now its chief centre, Lancashire. The extent of the industry in Great Britain at the

present day is probably unequalled by the combined production of all other nations of the world. The other European countries where the art is prosecuted to any considerable extent are France, Switzerland, and Germany, to the last of which the annexation of the Rhine Provinces, consequent on the war of 1870-1, has added a famous centre of the industry. The art is also extensively cultivated in the United States, while Oriental communities still continue to prosecute it in their own peculiar fashions.

In Europe the art has been in a great measure created anew. By the application of machinery, and by the light thrown on the processes by the progress of chemistry, the tedious methods of the Indians have been wonderfully simplified; and the processes are remarkable for the rapidity with which they are now executed, and for the beauty, fastness, and variety of the colors which are applied on the surface of cotton. So great have been these improvements, that at the present time in Manchester a piece (25 yds.) of calico can be printed in the short period of one minute; and the quantity of calicoes printed in Great Britain in one year cannot measure less than three quarters of a million of miles, seeing the exports alone of printed cotton piece goods during the year 1874 amounted to 1,003,101,107 yards, of a value of £19,602,706, an amount exceeded by 140,000,000 yards in 1872.

Grey calico is prepared for printing by an elaborate process of BLEACHING, for the details of which the reader is referred to the article under that head. The bleached cloth previous to printing is generally passed through a shearing machine, which removes from its surface the fine downy pile and short threads, thus preparing a smooth uniform surface capable of taking a sharp distinct impression from the engraved printing-blocks or rollers. The printing processes which follow are exceedingly complex and varied, demanding for their proper execution an extended range of chemical knowledge and mechanical ingenuity; and as commercial success depends largely on the tasteful and harmonious coloring of patterns, no little artistic ability and discrimination is required for the efficient superintendence of such works.

There are two modes of printing,—namely, *block-printing* and *machine-printing*. The former has been practiced from time immemorial; the latter is a modern invention, and originated after the introduction of the art of printing into Great Britain. In the case of block-printing the figure intended to be communicated to the cloth is cut out upon a block of sycamore, the parts which are to make the impression being left prominent, and the rest of the block cut away, just as practiced for wood engravings. When the figure is too complicated, and the lines too fine, to admit of being cut in wood, it is made by means of small pieces of copper, which are very ingeniously driven into the block, and the interstices are filled up with felt.

By means of a modern invention several colors may be applied at once on the cloth by means of one block. The machine used for this purpose, which is called a "toby," consists of a box divided into several compartments filled with various colors, which are in communication through tubes with bottles filled with the same colors; and by means of a gentle pressure the coloring fluid in each of the compartments of the machine is propelled through the felted cloth which covers each compartment. The block, being pressed against the cloth, takes the color which is to be conveyed to the white calico by the block-printer.

By Continental printers an intricate apparatus for printing called the Perrotine, from the name of its inventor, is employed; but it has never been introduced

to any considerable extent in England. In this machine the intended figures are engraved upon a flat copper plate of about a square yard or more in size. Upon this plate the color to be applied is spread. The plate is then pulled backwards, the excess of color being removed by a "doctor," and the color remaining on the engraving is then printed on the white cloth.

Printing is now almost universally accomplished by means of cylinder machines, in which the impression is given by one or a series of engraved copper cylinders; a different cylinder being required for each separate color or shade in the pattern. The cylinders are made about 3 feet 6 inches long and 6 inches in diameter; and in establishments of any considerable extent many thousands of these are kept in stock, involving an enormous outlay of capital. There are three different methods in practice for engraving patterns or portions of patterns on the cylinders. In the first, the "die and mill" process, a cylindrical steel die is engraved with the pattern, which is afterwards transferred to a "mill" or cylinder of soft steel. The pattern on the mill is in relief, and after hardening it is by pressure pressed into the copper roller. The diameter of the mill is such that the repeats of the pattern fit with the utmost precision when transferred to the copper roller. The "die and punch" process is a modification of the foregoing, in which small patterns are impressed on the copper cylinder by means of a punch which has the pattern in relief transferred to it from a sunk steel die. The third process by which engraved rollers are prepared is by the aid of the pantagraph, a most complex and ingenious machine, with which by the movement of a single tracer in the deep lines of an enlarged pattern cut in a zinc plate, these lines are reproduced on the original scale, traced at five different places through a coating of bituminous varnish on the surface of the cylinder. After the engraving is complete, the cylinder is placed in a bath of dilute nitric acid, by which the pattern is bitten in along the surfaces of the metal exposed by the scratching of the pantagraph points.

DYE COLORS.

Under this head are included prints prepared by printing the pattern in one or more mordants—substances which have an affinity for the fibre on the one hand and the dye-stuff on the other. The mordanted cloth is subsequently submitted to a process of dyeing, when the dye-stuff is fixed only on such parts of the cloth as have been impregnated with the mordant. By using more than one mordant, by mixing them, or by employing the same at different degrees of strength, a variety of shades or colors is produced in the process of dyeing with one dye-stuff.

Mordants.—The principal mordants employed for dye colors are the following:—

The acetate of alumina mordant or "red liquor" of the calico-printer is prepared by partly decomposing alum, held in solution by impure acetate of lime, commonly called pyrolignite of lime; sulphate of lime precipitates and acetosulphate of alumina is thus obtained.

In the manufacture of "red liquor," sulphate of alumina is frequently substituted for alum, and acetate of lead for pyrolignite of lime.

The oxides of iron are much used as mordants, either in the state of protoxide or peroxide. The salt most employed is the impure pyrolignite of protoxide of iron, which is prepared either by decomposing green copperas with pyrolignite of lime, or by placing in large vat, pyrolignous acid and old iron, when, after a few months the iron, which is gradually oxidized, dissolves in the acid, and gives rise to pyrolignite of protoxide of iron. This valuable mordant is thickened with calcined farina,

flour, starch, or gum, and applied on the calico. After being exposed for a few days in a moist atmosphere, it loses a part of the acid, and becomes partially peroxidized. Pyrolignite of iron of the specific gravity of 1.05 gives a black with madder and several "tannin" substances. Various shades of purple are obtained by adding different proportions of water to the mordant previously to applying it to the cloth; and various shades of chocolates are produced by mixing this with the alumina mordant previously described, and then dyeing also with madder.

These two mordants are the principal employed for madder colors; but several others are employed for special shades. Among these may be enumerated the aluminate of soda or alkaline pink (used as a mordant when it has to act as a resist for another color such as aniline black), and acetates of chromium, copper, tin, and other metals.

The principal dye color is madder or some of its derivatives, including artificial alizarin, the dyeing principle of madder obtained synthetically from anthracene. Madder is the root of a plant, *Rubia tinctoria*, a native of Central Asia, but introduced and extensively cultivated in south Europe, especially at Avignon in France. For the purposes of the calico-printer, madder-root is prepared by simply grinding, or in the form of flowers of madder, of garancin, of garanceux, or of alizarin. Fleurs de garance is powdered madder deprived of its soluble constituents and redried, whereby the tinctorial strength of the preparation is increased nearly one-half. Garancin is prepared by boiling powdered madder in sulphuric acid; garanceux is spent madder similarly prepared; and alizarin, the chief tinctorial principle of madder, is obtainable from garancin by the action of superheated steam. Among the chemical principles of tinctorial value yielded by madder there is, besides alizarin, an allied substance named purpurin. Alizarin of precisely similar composition and behavior is now artificially made from anthracene, one of the products of coal-tar, and purpurin also is obtainable by the oxidation of artificial alizarin. By chemical agency the essential ingredients of madder are thus now produced in a cheaper, more convenient, and more effective form than it was formerly possible to extract them from the cultivated root. Madder extract, garancin, and alizarin dye heavier and more brilliant colors than madder, and they require less soaping or other treatment to clean the whites after dyeing. Madder extract and artificial alizarin are also used as steam colors.

The cloth after receiving these impressions passes into a drying apparatus, generally a closed chamber, highly heated by radiation from steam-chests of cast-iron. Through such a chamber the cloth passes up and down over numerous rollers, traversing a long distance before it emerges dry and ready for the next process.

Ageing.—From the drying apparatus the goods pass to the ageing room, a lofty and spacious chamber where they are exposed to the combined influence of heat and steam.

It is next necessary to remove any superfluous uncombined mordant which may be on the cloth, and to take away the thickening agent with which the mordant was printed. These objects are accomplished by passing the goods through hot water, in which it was formerly the practice to dissolve cow's dung, hence the name; but now some of the numerous dung substitutes are chiefly used, the principal of which are the silicate and the arseniate of soda. Immediately after the fly-dunging the goods are washed and submitted to a second dunging, this time in a different kind of apparatus, through which they are passed in a coil or loose rope

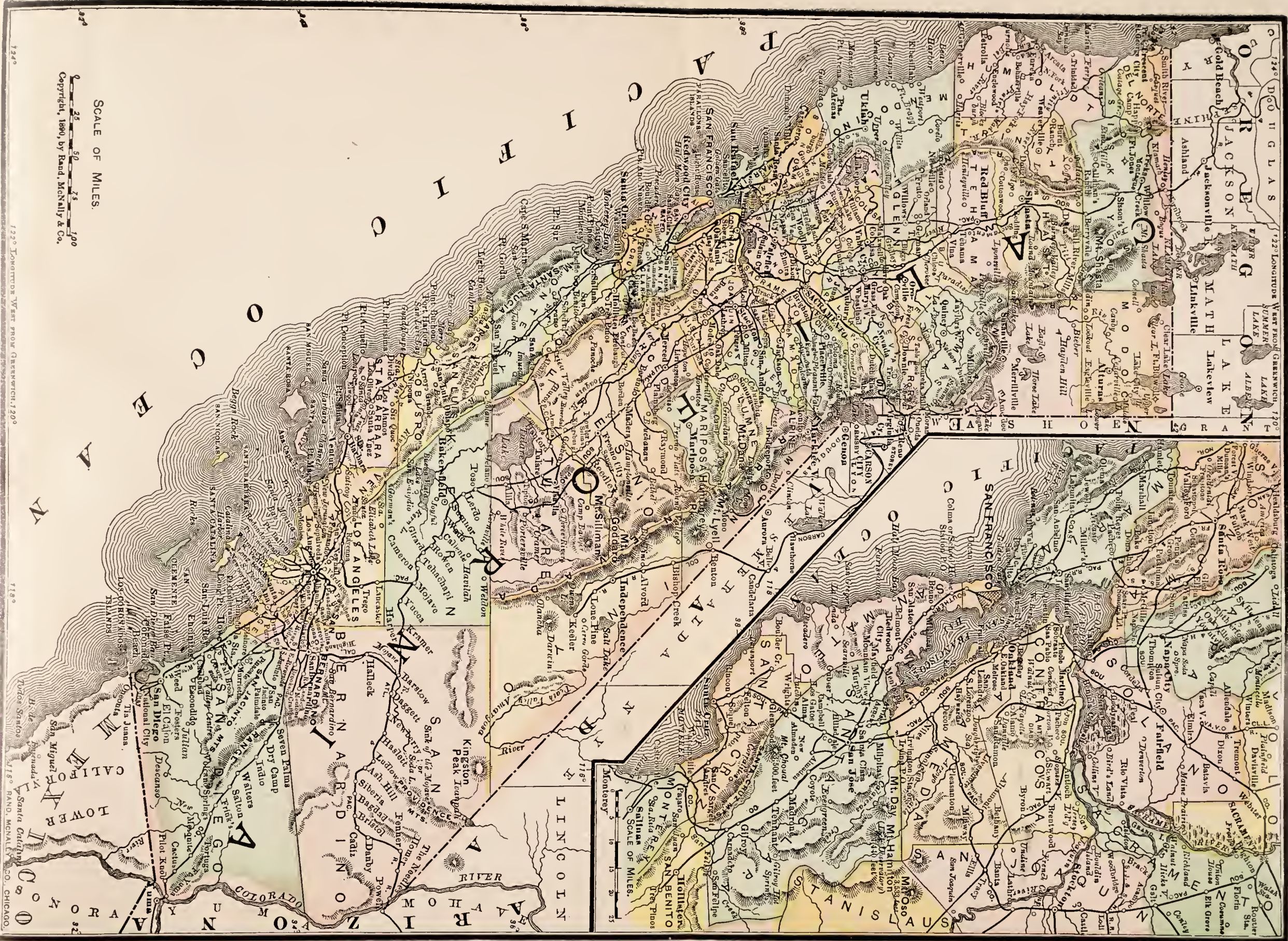
form. They are then thoroughly washed at a machine to remove the last traces of thickening matter and all uncombined ingredients.

At this point the goods are ready for dyeing, the most important process in the whole series of operations.

At this point the dyed calicoes present a very unpromising appearance, the mordanted portions which have absorbed the dye being dull and heavy in color, while the whites have a sickly pink aspect. The operations of cleaning are necessary to remove all the dye-stuff which is loosely attached to the whites, and to develop and brighten the tints of dyed pattern. A variety of processes are pursued to accomplish this object, but in all the action of soap and some "chemick" or chlorine solution plays the principal part. The soap must be free from all excess of alkali, and besides its detergent action it is supposed to be decomposed and give up part of its fatty acid to the lake formed by the mordant and the dye-stuff.

After the prints have undergone the various operations alluded to above, they are submitted to a series of processes, whose object is to give to the fabrics such an appearance as will please the eye of the buyer. All the finishing processes have one common end, namely, to fill up the interstices which exist in the fabrics, and thus give to the calico a more substantial and glossy appearance; and this is effected by filling the cloth with boiled starch, farina, or sour flour, which is obtained from wheat flour which has been allowed to ferment. To these are often added large quantities of sulphate of lime or baryta, and other similar substances, with the object of imparting to the cloth a weight and appearance of solidity which it does not really possess. The finishing processes are varied according to the nature of the print, muslins requiring a quite distinct method of treatment from ordinary calicoes, and furniture chintzes also receive a finish peculiar to glazed goods.

CALICUT, or KOLIKOD, a seaport town of India on the western coast, in the British district of Malabar and the presidency of Madras, situated about 560 miles S. of Bombay. The town stands on the sea-shore in a low and unsheltered position; and as there is neither river nor harbor, ships are compelled to anchor in five or six fathoms water, about two or three miles from land. Calicut is of considerable antiquity; and about the 7th century it had its population largely increased by the immigration of the Moplahs, a fanatical race of Mahometans from Arabia, who entered enthusiastically into commercial life. It was the first place in India visited by any European navigator, for it was there that Vasco de Gama arrived in May 1498, ten months and two days after his departure from Lisbon. At that time it was a very flourishing city, and contained several stately buildings, among which was especially mentioned a Brahminical temple, not inferior to the largest monastery in Portugal. In 1509 the Marshal Don Fernando Continho made an unsuccessful attack on the city; and in the following year it was again assailed by Albuquerque with 3000 troops. On this occasion the palace was plundered and the town burnt; but the Portuguese were finally repulsed, and fled to their ships after heavy loss. Not long after they concluded a peace with Prince Zamorin or Tamuri, and were allowed to build a fortified factory in the town. An English factory was founded in 1616. The town was taken in 1765 by Hyder Ali, who expelled all the merchants and factors, and destroyed the coconut trees, sandal-wood, and pepper vines, that the country, reduced to ruin, might present no temptation to the cupidity of Europeans. In 1782 the troops of Hyder were driven from Calicut by the British; but in 1789 it was taken and destroyed by his son Tippoo, who carried off the inhabitants to Beypore, and treated them with



SCALE OF MILES.
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great cruelty. In the latter part of 1790 the country was occupied by the British; and under the treaty concluded in 1792, whereby Tippoo was deprived of half his dominions, Calicut fell to the British. After this event the inhabitants returned and rebuilt the town, which in 1800 consisted of 5000 houses. The present population is upwards of 25,000.

CALIFORNIA. This State lies between parallels $32^{\circ} 0' 30''$ and 42° N. latitude, and, with a coast line of 900 miles on the Pacific ocean, extends from the latitude of Boston to that of Charleston. On the north is Oregon, on the east are Nevada and Arizona Territory, and on the south is Lower California. The northern third of the State lies between 120° and $124^{\circ} 26'$ W. longitude. The lower two-thirds have a southeasterly trend, the easterly boundary being as nearly as possible parallel with the coast line. The extreme length is 775 miles, the maximum width 235 miles, and the minimum width 148 miles. The total area is 158,360 square miles, and the land area 155,980 square miles, making the State second only to Texas in size.

Topography.—Two great mountain ranges, starting at a common point (Mt. Shasta) in the northern extremity of the State, separate, and run downward, parallel with each other and the coast, nearly to the southern end of the State, where they again unite. The range to the east is the Sierra Nevada (meaning "snow-covered mountains") and that on the west is the Coast Range. South of their southern junction, and running in a general direction parallel with the coast, are other ranges, principal among them being the San Gabriel, San Fernando, and San Bernardino. The Coast Range is subdivided into several ranges in various parts of the State. Evidences of former volcanic activity are abundant, hot springs are numerous, and harmless earthquakes not infrequent. The proportion of level land is small; the major part lies in the grand basin between the Sierra Nevada and the coast ranges, but there are numerous smaller valleys in the latter.

The great valley has an outlet to the ocean through the Coast Range at the Bay of San Francisco, which in turn communicates with the ocean through the Golden Gate. The northern half of the valley is called the Sacramento valley, as the Sacramento river flows southward throughout its length; the southern half is the San Joaquin valley, as the San Joaquin river flows northward through a part of it to the Sacramento river. The two rivers, after uniting at a point opposite the Golden Gate, debouch into the Bay of San Francisco. The great basin slopes from the north and south to the center. Redding, in the north, is 556 feet above the level of the sea, and is 299 miles from San Francisco; Bakersfield, in the south, is 282 feet above sea-level and 314 miles from San Francisco. Sacramento, near the point of meeting of the two rivers, is only 30 feet above the sea. The basin is 450 miles long and from 30 to 75 miles wide. Between the Nevada line and the Colorado river, on the east, and the Coast Mountains in the southern part of the State, on the west, lies the great Colorado desert.

The Sierra Nevada are the loftiest mountains in the State, the height of the ranges diminishing as the sea is approached. The loftier Sierras are perpetually covered with snow; the average height is about 8,500 feet; the highest peaks are Mt. Shasta in the north (14,440 feet) and Mt. Whitney in the south (15,000 feet). The coast range gives altitudes ranging from 2,000 to 5,000 feet, two of the most conspicuous peaks being Monte Diablo, opposite the Golden Gate, and Mt. Hamilton, the site of the Lick Observatory. In the extreme southern end of the State stands Mt. San Bernardino, an almost isolated peak 11,000 feet above the sea. The Sierra Ne-

vada have an abrupt slope to the east and a gentle slope to the west, terminating in rolling foothills, which constitute an important feature of the agricultural resources of the State. Very few valleys of any agricultural importance exist within the Sierra. The most valuable is Owens valley, on the eastern slope of the mountains, 100 miles in length and from 4 to 6 miles wide.

The most conspicuous valleys of the coast mountains are the Napa and Sonoma valleys, extending north from the Bay of San Francisco; the Santa Clara valley, extending south from the bay; the Salinas and Pojaro valleys, reaching out from the Bay of Monterey, and the great valley in Los Angeles county. All these have but a slight elevation above the sea. The close approach to the sea-level of all the important valleys of the State accounts in a measure for the presence of large lakes and of tracts of swamp land. In the lower end of the San Joaquin Valley is Tulare Lake, a large sheet of water bordered by marshy ground overgrown with tules (a kind of rush). South of this is Kern Lake; and a vast body of land from the confluence of the Sacramento and San Joaquin rivers to the Bay of San Francisco is of a similar character.

The coast line is rocky, mountainous, and dangerous. Few inlets and safe harbors exist, the most important being the Bay of San Francisco, one of the largest and safest harbors in the world. South of San Francisco are the harbors of Santa Barbara, San Pedro, and San Diego.

In the Colorado desert are depressions several hundred feet below the level of the sea. Saline marshes and alkaline tracts are features of the desert. Hot and cold mineral springs abound in the State, and cover a wide range of medicinal virtues; these are confined to no particular district, but are most numerous in the counties of Lake, Napa, and Sonoma. The Geysers, in Sonoma county, yield great volumes of steam and boiling mineral waters of various kinds, and as a natural wonder are second only to the Geysers of the Yellowstone. Several lakes of great beauty exist in the Sierra, the largest being Lake Tahoe, twenty miles long and 6,200 feet above the level of the sea. (It has been proposed to tap this enormous reservoir to secure water for irrigation and for domestic consumption.) Another large and beautiful lake, called Clear Lake, lies in the coast range north of San Francisco.

Geology.—Granite is the principal element in the axis of the Sierra, and it is rent in places by volcanic strains. Along the flanks lie more or less crystalline and metamorphic slates or schists of Palæozoic, Triassic, and Jurassic age, the edges lying at all angles between horizontal and vertical. This is the "bed rock" of the miners, against which lie strata of marine deposits, of the Tertiary age in the south and Cretaceous in the north, giving evidence of the existence of a sea where the great basin now lies. In the north-central and northern parts of the State, in the western flank of the Sierra, are immense gravel beds bearing gold and often overlaid with volcanic overflow. The coast ranges show Tertiary and Cretaceous strata principally of sandstones and calcareous clay shales, often greatly metamorphosed and generally folded and distorted, with here and there intruding dikes of eruptive rocks and upheaval-axes. In the northern part of the State the ranges are covered in places by tufaceous and scoriaceous or crystalline lava flows. Bordering the great valley are "bench lands" and terraces showing marks of a great fresh-water sea, which apparently was drained by a break through the mountains where now lies the Strait of Carquines. The later surface deposit in the San Joaquin valley is mostly sandy and that in the Sacramento clayey ("adobe"), in either case representative of the constitution of the contiguous water-sheds. Borings disclose fine silts, with

sands and gravels, these constituting the surface of the great desert in the southeastern corner of the State, where the conditions for alluvial deposits do not exist.

The Yosemite valley is one of the marvels of the Sierra. The verticalness of its walls suggests the theory that it was formed by the sinking of a tract which represents the area of the valley. The valley is 3,000 feet deep, and over the brink plunge some rivers, producing the loftiest and most remarkable waterfalls in the world. There are many other scenes of natural grandeur in the Sierra.

Climate, Rainfall, Drainage.—The distinguishing peculiarities of the climate of California below the snow-line of the Sierra are a small rainfall, rainless summers, nearly constant winds from the Pacific, and absence of extremes of temperature. These conditions are produced by the winds, and their bearing upon agriculture is of so great importance that experience in agricultural pursuits acquired in other parts of the country cannot be applied in its entirety to similar pursuits in California. The wind of summer comes generally from the north and northwest, and in part remotely from the frozen regions of the north; but as it passes over the warm Japan ocean current it becomes tempered, yet is still cool along the whole coast of California north of Santa Barbara, becoming warmer toward the south. This wind is of steady effect west of the coast ranges, but suffers deflection in the valleys; thus, in the Sacramento Valley, after passing through the Golden Gate, it is turned northward, and in the San Joaquin southward. By the time it reaches the interior its temperature has been much raised by heat radiated from the earth, so that in the interior valleys the summer is warm. Thus, the average summer temperature at San Francisco, on the coast, is 58°, while that of Red Bluff, in the upper part of the Sacramento Valley, is 80.8°, and that of Tulare, in the lower part of the San Joaquin Valley, is 83.8°. At Santa Barbara, on that stretch of the southern coast which trends eastwardly, the summer average is 67.9°; at Los Angeles (about fifteen miles inland) 73.2°; and at San Diego, on the extreme southern coast, 69.7°. The temperature of the foothills does not vary greatly from that of the contiguous valleys. On the coast north of Santa Barbara warm clothing is required throughout the summer, and as the nights are several degrees cooler than the days, warm bedclothing, and sometimes fire, is needed. The summer winds bring no rain, but they contain much moisture; and throughout the greater part of the State the low nocturnal temperature of summer condenses this moisture in the form of heavy dews, which perform an important function both through the absorptive powers of plant-leaves and, in special cases, the gathering of the dew-drops by the leaves, and the sending of this moisture by gravity to the roots. No account of this precipitation is taken in the tables of rainfall which are published from time to time.

Whereas in summer cool winds come from the northwest to lower a temperature which would otherwise be high, by a singular coincidence the prevailing winds of winter come from the south and southwest, bringing heat from the tropics to raise a temperature which would otherwise be cold. Hence it follows that along the coast, and extending inland for some distance, the difference between summer and winter temperatures is strikingly small. This may be illustrated by selecting five points scattered along the coast from north to south, giving season averages:

	Summer.	Winter.
Humboldt Bay.....	58.2°	47.0°
San Francisco.....	58.0	50.1
Santa Cruz.....	62.9	50.5
Santa Barbara.....	67.9	54.1
San Diego.....	69.7	54.1

The record of the great basin shows a wider difference between summer and winter temperatures, as is shown in the following table of places, beginning at the northern end of the basin and running to the southern:

	Summer.	Winter.
Redding	81.6°	47.3°
Red Bluff.....	80.8	47.5
Marysville	78.7	49.5
Sacramento	71.8	48.2
Stockton	72.5	48.2
Modesto	78.2	47.8
Fresno	84.1	51.3
Sumner	86.2	48.7

The minimum temperature determines the hardiness of plant life in a locality, and consequently the range of vegetable products. More or less frost occurs nearly all over the State. Along the coast the calla, grown elsewhere in the United States as a hot-house plant, blooms outdoors in winter, and often passes through a winter untouched; and on the slopes of the coast ranges, above the frost-line of the valleys, the very tenderest plants usually escape hurt. It is not uncommon to see geraniums, fuchsias, and heliotropes of great size.

The winter winds bring the rains, which come at intervals from November to April; yet the amount of the precipitation is exceedingly small in comparison with that in other parts of the country. It is much greater in the northern part of the State than in the southern; and with the exception of places where there are local conditions to disturb the rule, there is an even decrease of the rainfall from north to south, as may be seen from the following list:

	Inches.
Del Norte County (coast).....	73.4
Redding (Sacramento valley).....	42.1
Red Bluff (Sacramento valley)	24.0
Sacramento (Sacramento valley).....	18.7
Auburn (Sierra foot hills).....	34.0
Cisco (high Sierra).....	60.8
Napa (Coast Range valley).....	26.6
San Francisco (coast).....	20.7
Stockton (San Joaquin valley).....	15.8
San Jose (Coast Range Valley).....	12.2
Modesto (Sacramento valley).....	9.6
Santa Cruz.....	26.4
Salinas (Coast Range valley).....	12.8
Fresno (San Joaquin valley).....	8.9
Sumner (San Joaquin valley).....	8.0
Santa Barbara (coast).....	16.2
Los Angeles (near coast).....	12.0
Riverside (interior valley south).....	13.6
San Diego (coast).....	9.3

From this it is seen further that the rainfall is heavier on the coast and in the high Sierra than in the interior valleys. Mount San Bernardino, on the western side of the Colorado desert, is a rain-gatherer, and from its flanks rise several important streams; hence the rainfall at Riverside, although far inland, is much heavier than at San Diego, on the coast. The rains which escape the coast ranges are caught by the Sierra, often in the form of snow; so that east of the Sierra there is little precipitation. As snow-falls in the coast ranges are light and soon pass away, and as there are no rains in summer, the streams making out of these ranges, except where they issue from heavily-timbered districts, go dry in summer; but many fine streams issue from the Sierra, being kept alive through the summer both by percolation from the water-stores which the mountains have taken up and by the steady melting of snow. The Sacramento and San Joaquin rivers are the main arteries of the Sierra system, and into the great basin pour the waters of the Feather, Yuba, Bear, American, Cosumnes, Mokelumne, Calaveras, Stanislaus, Merced, Tuolumne, Kaweah, Kings, Tule, and Kern rivers. South of the Tehachapi Pass, which is the outlet from the great basin to the so-called Mojave and Colorado deserts, the stream of most importance is the Mojave river, which

risers in the San Bernardino mountains, and after flowing out into the arid lands disappears in the sand. The San Gabriel, Santa Ana and Los Angeles rivers, rising in the same region, flow to the sea. Between the Mojave and Colorado rivers lies the great Colorado desert, which is without other watercourses than the Colorado river. Compared with the States east of the Rocky mountains, California has but a small volume of flowing water; and navigation is possible only on the San Joaquin and Sacramento rivers, and not far into the interior even on them.

At long intervals disastrous floods occur. One was in 1861. Heavy storms commenced in December, 1889, resulting in the early part of 1890 in heavy falls of snow in the Sierra and extensive floods in the valleys, which did no great damage except to railroads, traffic, and early sown grain. On the Central Pacific railroad trains were stopped for eighteen days in January. The railroad into Oregon was closed from January 15th to March 25th by snow blockades and washouts. These were the heaviest storms recorded in the history of the State.

Fauna.—Of the great numbers of mammalia which originally fed upon the plains and in the mountains, but few now remain except in remote regions. The elk and antelope of the valleys are gone, but deer are yet found in considerable numbers in the less frequented parts of the coast ranges. The dangerous grizzly bear are now hard to find, although they still have a footing in the Sierra; and the black and the cinnamon bear, once so common, are equally scarce. Mountain sheep have been practically exterminated. The California lion occasionally still makes predatory raids on flocks of sheep sent into the mountains for pasture. Coyotes, once abundant, are rare. Several smaller animals, common in the Eastern States, such as tree-squirrels, ground-squirrels, cotton-tail rabbits, skunks, and the like, exist in large numbers. Beavers are rare. The hare ("jackass rabbit") breeds with such fecundity that at certain times the farmers turn out in great numbers, and have "rabbit drives," in which the pests, for the protection of the crops, are driven into corrals and slaughtered by thousands.

Two other animal pests are ground-squirrels and gophers. The latter especially are noxious, as they destroy fruit-trees by gnawing the bark from the roots. Simple means for exterminating these pests are available. Many kinds of birds are found, from the great eagles of the Sierra to the humming-bird. Quail of two kinds, both characteristic—the valley and the mountain quail—are very abundant. Water-fowl, including ducks of all kinds, have a wide range of species. Vast flocks of wild geese annually commit depredations in the grain-fields of the Sacramento and San Joaquin valleys. Fish of many kinds are found on the coast, and fishing is an important industry. The perennial streams are well filled with brook trout, and superb lake trout are taken from the lakes of the Sierra. The salmon is the most conspicuous fish. Pompino, barracouda, smelt, tom-cod, rock-cod, flounder, sole, turbot, mackerel, and many other food fishes, are very abundant. At times whales visit Monterey bay in large schools; formerly they were taken for their oil. Sharks of several kinds, including man-eaters, exist. Seals and sea-lions are numerous, and sometimes interfere seriously with fishing. A large colony of these animals inhabiting some high rocks in the ocean near the shore is one of the sights of San Francisco, and a still larger one has its home at Monterey. Of mollusks, the most interesting is the abalone (a member of the *haliotis* group), the shells of which are shipped in large numbers to England and there made into "mother-of-pearl"

buttons. The native oyster is very small, and transplanted oysters gradually deteriorate through successive generations. Hard-shell crabs are common. Radiates exist in large variety. There is a scarcity of insects, except those with domestic inclinations, as flies and fleas, but they are easily controlled. Mosquitoes are very rare. There is not a wide range of reptiles. The rattlesnake is common.

Flora.—The wide variety of soils and climatic conditions gives rise to a singularly diversified range of vegetation, many features of which are unique and picturesque. As a rule the valleys are bare of trees, except occasional groves of white-oak and live-oak, which originally were abundant, particularly in the coast valleys. The plains, as a rule, where uncultivated, are covered in the early spring with gorgeous masses of wild flowers, all annuals, the most striking being the *eschscholtzia*, or California poppy. The native grasses of the State are annuals, which for pasturage purposes are useful even when dead. The Sierra and Coast ranges are generally covered with various members of the pine family, and these forests are superb. The sugar pine, occurring in the north, is usually of great size, and with the redwood leads in commercial importance. Several kinds of pines bearing large edible nuts are abundant, and there are various species of cedars and cypresses, the most singular of these being the Monterey cypress, which, in its native home on the peninsula of Monterey, assumes the most grotesque forms imaginable. The most striking trees in the State are the *Sequoia gigantea* (the Big Tree of California), and the *Sequoia sempervirens* (the redwood)—both conifers. The former exist in isolated groups in the Sierra, the Mariposa Big Trees (on the road to Yosemite), the Calaveras Big Trees, and the less known Fresno grove being conspicuous examples. They are extremely rare. Some of the larger ones have a height of 350 feet and a diameter of 20 to 40 feet.

The age of the older ones is estimated at thousands of years, and their habitat is the Sierra, 5,000 feet above sea-level. Their cousin, the redwood, is very abundant, and its home is the coast ranges, extending in a wide belt from the northern extremity of the State to the bay of Monterey, with a long break of 175 miles, of which the Golden Gate is the center. A singular characteristic of this tree is its extraordinary tenacity of life. When cut down or destroyed by fire it sends up shoots from the roots, and in ten years after an area has been deforested there is a new growth of trees from ten to eighteen inches in diameter, and from twenty to forty feet in height. The grain is straight and coarse; the wood splits with remarkable ease, is practically impervious to rot, resists fire with singular efficacy when fashioned into houses, and altogether is the best lumber known for weather-boarding. It has been largely cut out, but superb new forests have grown up. The tree often grows to immense size. The Big Tree grove in the Santa Cruz mountains, on the line of the South Pacific Coast Railway, is one of the wonders of the State. Some of these trees are over 200 feet in height, and more than twenty feet in diameter; in the hollow living trunks of some, families have lived and children been born. The cutting and milling of redwood is one of the great industries of the State. The California laurel is a useful tree, largely employed in the interior finish of houses. The madroña, with its red trunk and rich dark-green foliage, is very handsome. The manzanita is an attractive tree-shrub. Poison-oak, whether as shrub or vine, is abundant on the lower mountain slopes. The range of wild flowers, both annuals and perennials, is exceedingly great, and the beauty of many of them striking. There are several varieties of

lilies, including the tiger lily. Among the more conspicuous flowers are the wild rose, pansy (yellow), sage, ceanothus, larkspur, lupin, eschscholtzia, blue-bell, cyclamen, azalea, trillium, pentstemon, tulip in variety, dandelion, etc. One of the most useful pasture growths is alfilerilla (allied to the geranium), and there are native clovers of great value, and an excellent wild oat. Mustard is common on the plains, and often grows to a height of six or eight feet.

History.—The first employment of the name California was in a popular romance published at Madrid in 1521, twelve years before Cortez, or one of his officers, discovered Lower California. The story was entitled "The Exploits of the Very Valiant Knight Esplandian, Son of the Excellent King Amadis of Gaul." In chapter 157 is an account of an island called California, "close to the terrestrial paradise." Lower California, at first supposed to be an island, was discovered in 1533, and later the gulf now known as the Gulf of California was discovered and navigated by Cortez himself; after whom it was for a time called El Mar de Cortez, and later El Mar Vermejo (the Red or Vermillion Sea), in consequence of the red color which it has at times, and which is probably due to the multitudes of small animalculæ (crustaceans?) inhabiting its waters. In 1540 the mouth of the Colorado River was discovered by Alarcon, in command of a fleet sent out by Mendoza for geographical exploration. The Bay of San Diego was entered by Pedrillo, a Portuguese navigator, in 1542. Sir Francis Drake explored the coast of Upper (or Alta) California in 1598, and General Sebastian Viscaino in 1602. Thereafter, for a century and a half, nothing was done till April 11, 1769, when some Franciscan friars made a settlement at San Diego; and in July of that year Friar Junipero Serra, the father of far Western civilization, joined them, and under authority of Spain set about the establishing of missions, the immediate western authority being the Order of St. Francis of the Convent of San Fernando, city of Mexico.

The missions were established up and down the coast, to the number of twenty-one, from San Diego to San Francisco, during the succeeding fifty-one years. Some of the fine old mission houses, built of *adobes* and roofed with tiles, still stand, remarkable among them being San Juan Capistrano, San Buenaventura, Santa Barbara, San Miguel, San Fernando Rey, and Carmelo. The Indians were brought under control and made to serve as laborers in large numbers. The fathers cultivated the olive and the vine, and owned vast herds of horses, cattle, and sheep. They accumulated wealth and had great power. When Mexico established her independence of Spain in 1822 the missions, then at the height of their prosperity, became the victims of Mexico's dislike and the subjects of an annoying supervision, a gradual destruction of their power, and finally, in 1845, a confiscation of all their property and the selling at auction of so many of the fine old piles as had not already fallen into decay. Spain had controlled the territory through governors from 1768 to 1822, when Mexico took control. As early as 1825 American adventurers began to flock to California, and the Mexican authorities (with two branches—the military, with the commandantes of the various presidios in charge, and the *alcaldes*, judges, and law-administrators of the *pueblos*, and a governor at the head of both) became alarmed. England, France, and the United States all coveted the territory and resorted to various strategical but futile methods to secure it; and as clashings between the Americans and Mexicans were becoming frequent, and the indications of trouble clearer, those three nations sent armed fleets to the coast. John C. Frémont and a small band of men were sent overland

by the United States, and his presence and operations emboldened the Americans. The national flag was raised by them north of San Francisco, independence of Mexico was declared, and some fighting ensued.

On July 7, 1846, Commodore Sloat, in the name of the United States, seized Monterey, the seat of government. Desultory fighting occurred, but the Americans retained their supremacy pending the issue of the war between the United States and Mexico. This terminated with the treaty of peace signed at Guadalupe Hidalgo, Mexico, February 2, 1848, ratified by the United States March 10, 1848, and by Mexico, May 24, 1848, by which Mexico released to the United States all claim to a large territory, including California. The State since 1846 had been under the charge of military governors appointed by the United States; and one of these, General Bennett Riley, issued a proclamation June 3, 1849, appointing August 1st, of that year, for the election of delegates to a convention to meet at Monterey, September 1st, to frame a constitution and establish a territorial government. The convention met, acted, and then adjourned October 13th.

On November 13th the constitution was adopted and a governor and members of the Legislature elected. The Legislature assembled at San José, December 15th, and the governor, Peter H. Burnett, was inaugurated there December 20th. Congress ratified the constitution and admitted the State into the Union September 9, 1850. The seat of government was changed a few times and finally established permanently at Sacramento. In 1879 a new constitution was adopted.

Mining and Minerals.—It was the discovery of gold, in January, 1848, that started the great immigration into California, and ever since that time the mining of gold, silver, and other metals has been an important industry, yielding enormous quantities of both precious and base metals. The total value of the gold and silver product since 1848 is \$1,353,150,000. The production of bullion in 1889 is estimated at \$16,000,000, of which amount an eighth was silver.

Originally gold-mining was a simple operation—the diversion of streams and the washing of the gold with a pan out of the eroded detritus in the ripples of the bed. From that came the higher and more expensive forms of placer, hydraulic, and quartz mining. Many wild stampedes were made to localities of falsely-reported rich discoveries. After years of reckless operations the industry swung into balance, and sober capital took charge. The discovery of the great wealth of the Comstock lode in Nevada carried the excitement to a high pitch, and the wildest speculation in mining shares resulted. Homes and fortunes were wrecked, and the "bonanza kings" acquired enormous wealth. About 1878 matters took a more rational turn, and as a rule the profits now made in gold-mining are taken from the mines themselves. Hydraulic mining, by reason of its filling the water courses with debris, and injuring the arable lands, is now prohibited by law, except in the northern end of the State.

Silver mining has been attempted in many localities in California, and much money spent in trying to develop the argentiferous lodes which have, from time to time, been discovered. A few years ago, there was a great excitement on the very summit of the Sierra in regard to supposed valuable silver-bearing veins, and particularly at a locality called Meadow Lake, in Nevada county. Quite a number of mining camps and towns were built up, one of which had for a time several thousand inhabitants. Nothing permanently valuable was discovered, however, and the region was soon entirely abandoned. The most persistent efforts have been made, for some years, to work argentiferous

deposits in the volcanic rocks near the summit of the Sierra, in Alpine county, at and near Silver Mountain. Although it does not appear that any mine in this region has been successful, the expenditure was long kept up. Slate Range, a little to the east of Owen's Lake, was the scene of considerable excitement some years ago, rich silver ores having been discovered there; but it was found that mining could not be made profitable in that distant region, destitute of water and fuel. More recently, the Panamint Range, in the same vicinity, has attracted much attention. The best paying silver mines in the State seem, however, to be those in the Inyo Range, at Cerro Gordo, where the ore is chiefly galena, rich in silver, and also containing considerable gold.

Quicksilver has been extensively mined in California, the mine of this metal at New Almaden, Santa Clara county, having been worked previous to the gold excitement. All the workable deposits of cinnabar thus far known to exist are situated in the Coast Ranges, and they are chiefly limited to the metamorphic Cretaceous group of rocks, in which they are associated with serpentine, imperfect jasper, horn-stone, and chalcedony. By far the most important mines are those at New Almaden, a few miles west of San Jose. These produced, in their palmy days, during the years 1853 to 1857, and 1861 to 1869, from 2,500,000 to 3,500,000 lb. of quicksilver per annum. By 1870 the production had fallen off to 1,000,000 lb. The New Idria Mine is in Monterey county, about ninety miles south of New Almaden. This has also been, for some years, a quicksilver-producing locality of considerable importance. Cinnabar also occurs in considerable quantity at numerous places north of the Bay of San Francisco, in Napa and Lake counties. The most important mine in this region is the Redington, near Knoxville, in Lake county. The export of this metal from California was, in former years very large, reaching, in 1868, the amount of 44,506 flasks, or 3,404,709 lb.; in 1870, it was only 6,359 flasks, although the production for that year was estimated at 28,600 flasks, or 2,187,900 lb., of which 12,000 were the product of the New Almaden mine, 7,600 of the New Idria, and of the remainder, about one-half was from the Redington, and the rest from various smaller mines north of the Bay of San Francisco. Since that time the production has fluctuated, but has never approached the figures of its palmy days. The output of quicksilver for the State in 1889 was 26,000 flasks, of the value of \$40 to \$50 a flask; the average annual production is about 30,000 flasks.

Copper ores occur in a great many localities within the limits of the State of California, and at some of these a large amount of work has been done, although at the present time there does not seem to be a single locality where the ores of this metal are now mined. Quite large masses of nearly pure native copper, mixed with the red oxide have been found in the northwestern corner of the State, and also farther south in the Coast Ranges. No permanent mine has, however, yet been developed at any point on the west of the Great Valley. In the foot-hills of the Sierra, at a place known as Copperopolis, in Calaveras county, there is a very extensive deposit of copper ore, which was actively mined some years ago, producing very largely for a time. The mass of the ore here was, in places, as much as thirty feet wide, although not of high grade. In one year the value of the shipments of copper ore from California was a little over a million dollars; this was almost all from one mine, the Union at Copperopolis. Tin has been discovered at one locality in the southern part of the State, in the Temescal Range, about forty miles southeast of Los Angeles; and mining was attempted here, but the locality has been for some time abandoned. Zinc and

lead occur, in the form of the sulphuret, in a great number of the quartz veins of the gold-bearing belt; they are generally present, however, only in small quantity, and have not been made the object of mining enterprise. Iron ores are also found, in several localities, in large quantity; the want of suitable cheap fuel has prevented these ores from being utilized, most of the iron consumed on the Pacific coast comes from the Atlantic States or from Great Britain. Coal of the true Carboniferous period does not occur anywhere on the North American continent west of the eastern base of the Cordilleras; but there are, at various points, extensive deposits of lignite and imperfect coal; and in some of these, the woody structure is entirely obliterated, and the substance may with propriety be called coal. It is rarely the case, however, that it does not contain a large percentage of water. These deposits are both of Tertiary and Cretaceous age; but at the localities extensively worked in California and on Vancouver Island, the beds belong exclusively to the last named group. The only mines of coal of any consequence in California are those of Monte Diablo, so called because situated on the north slope of that mountain, and a few miles from the entrance of the San Joaquin River into Suisun Bay. The coal raised at these mines is of tolerably good quality for domestic use; but it cannot be used for ocean steaming or for making gas, as it contains a large amount of sulphur, and from 10 to 12 per cent. of water. These mines have yielded of late about 175,000 tons per annum. There is also a large deposit of about the same quality, and the same geological age, on Eel River, in Mendocino county. This is too far from navigable water to be utilized at present, as it cannot compete with the more accessible deposits on Vancouver Island, and at Bellingham and Coos Bays, or with those more recently opened near Seattle in Washington Territory. Borax is one of the mineral productions of California, which is becoming of some importance. Sulphur has been mined in several localities, to some extent, for the manufacture of sulphuric acid. Marble occurs in many places in the Sierra Nevada, and is quarried for ordinary architectural purposes. Granite and freestone are abundantly distributed; the former exists in inexhaustible quantity on the line of the Central Pacific Railroad, the latter near San Francisco and in many other places in the Coast Ranges. They have been extensively used in building and their durability will compare favorably with specimens from other localities.

Agriculture.—The rapid development of fruit-growing has caused other industries to occupy an obscured position in notice. It was not until the excitement of gold hunting had partially subsided that the facts of the agricultural possibilities of the State were even guessed at. The climatic conditions were so alien to the experience of farmers from other parts that their overlooking of the true wealth of the State is not a matter of wonder. The vast plains of the interior, rainless throughout many months, brown, parched, and dreary, practically devoid of perennial vegetation, in some places with barren stretches of sand which the wind raised in clouds and in others a black heavy soil crossed in all directions with sun-made fissures, gave no hint of their rich agricultural possibilities. So, at first pastoral pursuits were confined to live-stock, which found pasturage in the plains in winter and in the mountains in summer, and which yielded hides, horns, tallow, and wool for export. In remote localities on the coast the Catholic fathers had planted grapes and grown cereals, but they were far from the mining settlements. The new-comers were surprised to discover that grain would produce abundantly on the seemingly desert plains.

But the lesson learned, the cultivation of grain and the erection of flouring mills assumed importance. Wheat is the principal grain; and although fruit-growing has made such large advances within the last twelve years, the acreage in wheat, instead of decreasing, has steadily advanced. The great bulk of the grain is raised in the Sacramento and San Joaquin valleys, and there are still millions of acres of good land suited to its culture.

The wheat yield in 1889 was 30,000,000 centals; of barley, 500,000 tons; of corn, 5,000,000 bushels; of hay, nearly 2,000,000 tons. Although fruit-growing yields much larger profits, at present the receipts from fruit are only about half as large as those from grain. The distinguishing features of fruit-growing are, first, the large yields which a long growing season, a fertile soil, and unusual climatic conditions make the rule; second, the early age at which trees and vines come into bearing; third, the freedom from damage by rain; fourth, the ability to dry fruit in the open air, and fifth, the ability to grow certain fruits and make certain wines that cannot be grown and made elsewhere in the United States. The principal fruits and nuts are all kinds of grapes, and oranges, lemons, olives, figs, prunes, peaches, apricots, nectarines, cherries, apples, pears, plums, English walnuts, such small fruits as blackberries, strawberries, raspberries, currants, gooseberries. These are marketed in the following forms: grapes, as fresh fruit (table grapes), shipped to eastern cities, and as dried grapes and raisins, and as brandy and all kinds of wine; oranges and lemons, shipped to eastern cities; olives, prepared for table use or made into oil; figs, dried and packed; cherries, principally canned; prunes, dried; the other pitted fruits, canned or dried, and the small fruits, canned. The cost of shipping fresh fruits is a large item of expense, but the overland transportation charges have been steadily reduced from \$6.25 a hundred pounds to New York in 1870 to \$2 in 1889, with an assured prospect of further reductions as the yield increases. The cost of shipping canned and dried fruits, which constitute the large bulk of the exported product, is small. The home consumption of all these fruits in their various forms is very large. The acreage in fruit is over 250,000, and is increasing rapidly. The acreage in vineyards is 200,000, with an invested capital of \$70,000,000. Of green deciduous fruits there were 50,000,000 pounds shipped from the state in 1889, 35,000,000 pounds of canned fruit, and 40,000,000 pounds of dried fruit. The orange product of 1889-90 was 1,300,000 boxes. The present wine output is 18,000,000 gallons a year. About 4,000,000 gallons are annually distilled into brandy. Experience in the making of wine brings improvement, and the wines of the state are steadily growing in favor. The raisin output is 1,000,000 boxes and the output of dried grapes 2,000,000 pounds.

There do not appear to be sharply defined limits upon the localities for fruit-growing, except those imposed by high altitudes. Although the bulk of the oranges is raised in the southern part of the State, the culture of this fruit in the northern end of the Sacramento valley is giving fine results, and planting is proceeding rapidly. This is true also of olives. The hardier fruits, and grapes of all kinds, find generous conditions everywhere, even at altitudes of several thousand feet. An exceedingly small proportion of the lands suited to a wide range of fruits is cultivated at present, and discoveries of the State's natural resources in this regard are constantly being made. As a rule the industry is highly profitable, but time and money are often lost in experimentation. Fruit unions exist, whose function it is to market fresh fruits in the east. There are State and county horti-

cultural and viticultural societies and commissions in number, and the most intelligent and painstaking efforts to secure the best results are made unceasingly. Insect pests which prey upon trees are studied and are usually exterminated. Phylloxera has but a slight hold in the vineyards in isolated localities, and its ravages have been slight; its progress is checked by the employment of resistant roots, into which the desired grape is budded. A mysterious vine disease, which the national government is now investigating, has done harm in the southern part of the State.

The growing of vegetables for shipment out of the State is a large industry. There were sent out in 1889, 390,974 sacks of beans, 1,137,418 sacks of potatoes, 160,824 sacks of onions, and 12,231 bales of hops. The production of hops was 35,000 bales. The cultivation of the sugar beet, and the manufacture of sugar therefrom, is a rapidly-growing industry, yielding good returns. Efforts are being made to encourage the cultivation of cotton, which experiment has shown to afford a superior product. The Department of the Interior in 1884 published a full and able report on this subject.

On December 1, 1889, there were in the State 15,300,000 centals of wheat and 116,000 barrels of flour. The export of wheat for the last cereal year was 13,480,448 centals, worth \$19,880,626.

Industries and Resources.—Beside the industries and resources mentioned elsewhere may be noted a few others. The value of the manufactured products of 1889 is estimated at \$160,400,000; 368,400 horses, valued at \$25,857,000; 40,765 mules, valued at \$3,415,000; 258,296 cows, valued at \$8,105,000; oxen and other cattle, 726,880, valued at \$14,080,000; sheep, 3,956,000, valued at \$7,453,000; hogs, 647,000, valued at \$3,316,000; value of live-stock of all kinds, \$63,526,000; wool product, annual average, 35,000,000 pounds. Petroleum exists in large quantities in the coast ranges and oil wells have been yielding fair returns. A most valuable article is the "bituminous rock" of the coast ranges. Mountains of sand became saturated with petroleum, the volatile parts of which have passed away, leaving a residuum of bitumen as the binding substance of the sand, the mass being a black, hard, and tough substance. This is mined in large quantities and used for sidewalk and street pavement, and for that purpose is exceedingly useful. Boring for gas has been successfully accomplished at Stockton, where there are several wells yielding liberally. Other borings will be made elsewhere. Ostrich farming in the southern part of the State engages considerable capital and yields handsome returns; the birds originally were brought from Africa. Many quarries of excellent building stone, with granite and sandstone at the lead, are in operation in various parts of the State. The possibilities of the climate in the breeding of fine horses has been amply demonstrated by the Hon. Leland Stanford, J. B. Haggin, E. J. Baldwin, Porter Ashe, and others. Dairying and chicken-raising are important industries. Some large woolen mills at San Francisco and San José do a profitable business. Several important paper mills secure excellent results. Large quantities of lime are shipped out of the Santa Cruz mountains. With the exception of the coal from the Monte Diablo mines the coals of the State are generally inferior, lignite being common. The manufacture of glass is progressing steadily; perfect sand for the purpose exists in inexhaustible quantities. Many large tanneries do a profitable business, tanbark being abundant. Cheese factories are numerous. The Government Navy Yard at Mare Island is an important institution, and it is here that the new cruisers, the *Charleston* and the *San Francisco*, built at San Francisco, received their fitting, equipment, and armament in 1890. In 1889

there were 64,600 bee-hives, yielding 1,092,900 pounds of honey. A large cotton mill is operated at Oakland. Lumber is one of the leading industries, and many planing mills are run. The growing of the *pyrethrum* and the manufacture of buhach (insect powder) is a large enterprise. Factories of many kinds are in operation. Ship-building has arrived at considerable proportions, and at San Francisco there are facilities for constructing all kinds of ocean craft, including first-class steel steamships. The gross tonnage of vessels constructed in 1889 was 8,541.95, but this does not include three government armored vessels, which had not been measured.

California is a country particularly adapted to raising sheep, and the wool interest is a very important one. The winters are so mild that shelter for the flocks is not required, and they have no other food than that which they pick up for themselves on the lower plains in winter, and in the higher mountain valleys in the summer. The summit valleys of the Sierra are literally alive with sheep during the months of July, August, and September, countless herds being driven there from the parched-up plains at the base of the range.

The great distance of the Pacific coast from the manufacturing districts of the world offers a heavy premium for the establishment of various industries, especially for those which furnish bulky and inexpensive products, such as wooden wares, agricultural implements, machinery, coarse articles of clothing, and vehicles. The drawbacks are, the high price of labor, where the Chinese cannot be employed; the absence of good coal, and the scarcity of other fuel; the distance of the water-power from the principal markets, and its high cost at all points, which is due to the necessity of building long canals, dams, and other appliances for storing and utilizing the water; and the absence of those woods which are most needed for the innumerable uses to which this material is put in manufacturing. There are certain articles, however, which have to be made in California, because the people of other countries find it difficult to ascertain exactly what is needed to meet the requirements of the Pacific coast. Thus, mining machinery is a very important article of Californian manufacture, and many improvements have been made in this department, called out by the peculiar wants of this State and of Nevada. The manufacture of heavy woolen goods, especially blankets, is an item of importance, there being several large establishments of this kind in San Francisco. Boots and shoes are manufactured in large quantity for home consumption and from native leather.

Finance and Taxation—The debt of the State in 1890 was \$2,637,000, and the aggregate debt of the counties \$5,607,450. The expenditures of the State government in 1889 were \$7,224,493. The State rate of taxation in 1890 was \$0.58 on each \$100. The average rate of the counties is much below \$1. The legal rate of interest is 7 per cent., but there are no laws against usury.

The State has thirty-two savings banks. During 1889 they received \$68,646,465 in deposits and paid out \$58,374,403 in withdrawals. The interest they pay on term deposits ranges from 5 to 5.40 per cent., and on ordinary deposits from 3 to 4.50 per cent. The amount of interest paid depositors in 1889 was \$3,700,414; earnings, \$5,907,583 gross and \$4,377,935 net; amount held January 1, 1890, to the credit of depositors \$94,000,000. There are 117 commercial banks, holding \$50,610,860 of deposits July 1, 1889, and having a paid-up capital of \$37,560,595 and a reserve fund and surplus of \$13,367,834. The commercial banks had loans of \$14,952,639 on real estate and the savings

banks \$64,332,572. The clearances were \$843,778,581.

Education, Property, Population.—The system of public instruction is extensive and thorough, reaching into the remotest districts. Its organization consists of a State board of education, a superintendent of public instruction, county boards of education, county superintendents of education, city boards and superintendents, and district trustees. Its highest institution is the State University at Berkeley; State normal schools at San José, Los Angeles, and Chico, high-schools, and grammar and primary grades. The following table shows the number of census school children (between the ages of five and seventeen years), and the total assessed valuation of property in each of the counties for 1889:

Counties.	No. of census children.	Property assessment.
Alameda.....	21,994	\$71,896,182
Alpine.....	88	282,835
Amador.....	2,858	4,281,969
Butte.....	4,202	20,730,252
Calaveras.....	2,424	4,315,461
Colusa.....	3,292	24,365,995
Contra Costa.....	3,440	15,194,592
Del Norte.....	484	1,925,061
El Dorado.....	2,229	3,879,887
Fresno.....	6,437	35,384,173
Humboldt.....	5,889	18,440,872
Inyo.....	609	1,548,695
Kern.....	1,783	11,831,780
Lake.....	1,892	4,022,484
Lassen.....	1,012	2,527,449
Los Angeles.....	*27,799	84,376,319
Marin.....	2,530	11,108,657
Mariposa.....	964	1,849,641
Mendocino.....	4,305	11,944,265
Merced.....	1,617	14,146,845
Modoc.....	1,420	2,993,084
Mono.....	303	941,010
Monterey.....	4,518	15,536,037
Napa.....	3,516	14,970,181
Nevada.....	4,269	6,305,090
Placer.....	3,005	10,118,060
Plumas.....	1,031	2,309,441
Sacramento.....	7,417	34,460,174
San Benito.....	1,997	6,332,911
San Bernardino.....	5,990	23,267,955
San Diego.....	8,319	31,560,918
San Francisco.....	60,642	291,700,433
San Joaquin.....	6,238	38,802,666
San Luis Obispo.....	4,402	15,139,117
San Mateo.....	2,491	13,888,887
Santa Barbara.....	4,480	15,888,628
Santa Clara.....	11,853	53,112,662
Santa Cruz.....	4,637	11,160,230
Shasta.....	3,236	6,594,003
Sierra.....	1,063	1,679,388
Siskiyou.....	2,670	6,966,007
Solano.....	4,476	20,182,050
Sonoma.....	8,257	31,222,671
Stanislaus.....	2,376	16,281,757
Sutter.....	1,309	10,079,868
Tehama.....	2,718	11,901,255
Trinity.....	757	1,153,344
Tulare.....	6,663	24,343,013
Tuolumne.....	1,596	2,716,465
Ventura.....	2,520	8,598,952
Yolo.....	3,408	20,911,325
Yuba.....	2,207	7,046,316
Orange.....		9,270,767
Totals.....	275,302	\$1,111,590,979

* Includes Orange county.

The official report of the United States census of 1890 gives California a population of 1,203,130. The population of California is concentrated in and around San Francisco; and it becomes rapidly less dense as one recedes from the center. San Francisco is not only the metropolis of California, but of the whole Pacific coast. The population of San

Francisco is 298,997. The other large towns are Sacramento, 26,386; Oakland, 48,682; San Jose, 18,060; San Diego, 16,159; and Los Angeles, 50,395. The total of the assessed valuation of property is divided as follows:

Value of land and improvements	\$ 903,544,292
Value of personal property, and amount of money.....	170,981,078
Value of railroads	40,488,652
	\$1,115,014,022

Besides the public schools there are numerous private institutions of a high order. The Leland Stanford Junior University, with an endowment of \$20,000,000, is being built. Its design is benevolent, the intention being to give practical education at a low price. An important adjunct of the State University is the Lick Observatory, constructed and equipped on Mt. Hamilton with \$700,000 bequeathed by James Lick for the purpose, and containing the largest telescope in the world, the objective being thirty-six inches. The value of the public school property is \$10,513,000, and the expenditures in 1889 were \$4,996,865.

The efforts of Congress to check Chinese immigration have had some success, but evasion of the laws is common. There are probably less than 100,000 Chinese in the State, and the number is steadily diminishing.

The Chinese element in California is a peculiar and interesting feature. They were formerly settled in great numbers in San Francisco, where they were house-servants and operatives in the manufacturing establishments, which could not be successfully carried on with white labor. They also worked the abandoned placers, although the amount of their gains in this operation must usually have been very small, as they were only allowed to occupy spots supposed by the white men to have been quite worked out. The whites have a great dislike to Chinamen, who have been frequently driven away from their claims, and expelled from districts by mobs.

Irrigation.—In the valleys of the coast ranges there is almost invariably a sufficient rainfall to ripen the crops; but in the great interior basin the precipitation is less and uncertain, while in the dry plains of the South it is inadequate. The value of artificial irrigation by utilizing the waters of the streams in a systematic distribution over the land has forced itself upon the public attention and is receiving the earnest consideration of congress. Wherever it has been employed uncertainty is reduced to certainty, and arid lands made cultivable. Within the last few years the State has by statute formulated a scheme for the creation of irrigation districts, and the most satisfactory results have followed from its practical operation. Already twenty-six districts have been formed or are projected, including 2,600,000 acres of the most fertile land. A very large part of the waters of the streams can easily be utilized, though in many cases where mountain reservoirs are needed to be constructed national aid will be required. Irrigation does away with the only element of uncertainty in the production of all the crops peculiar to the State, and vastly increases the area of cultivable lands. Nearly the whole of the great desert in the southeastern extremity of the State might be made of great value by use of the waters of the Mojave and Colorado rivers. It is not unlikely that vast operations in this form of state development will be accomplished within a few years.

Transportation Facilities.—Despite the great distance from the centers of trade and population there are excellent transportation facilities, and these enterprises are conducted on a liberal and progressive plan.

By ocean the State is connected with the outer world by a large fleet of sailing vessels, and by several lines of steamers sailing at regular intervals. The principal of these latter are the Occidental and Oriental Steamship Company, sending steamers to Japan and China about every twenty-four days; The Oceanic Steamship Company, to the Hawaiian Islands, New Zealand, and Australia, about every three weeks; and for Panama, with freight and passengers for New York, every three weeks, the Pacific Mail Steamship Company. There are several coastwise steamer lines, including the Pacific Coast Steamship Company, for Alaska and intermediate points on the northern coast and Mexico and intermediate points on the southern; the Union Pacific Railway Company's Ocean Division, for the Columbia river; the Oregon Development Company for the Columbia and Willamette rivers.

The bulk of wheat is exported in clipper ships. There are 4,000 miles of railroad in the State. The overland roads entering the State in the south are the Southern Pacific Company and the Atchison, Topeka, and Santa Fé; in the central part of the State, the Southern Pacific Company (Central Pacific Railroad). The Southern Pacific Company was chartered by the Legislature of Kentucky in 1884 to consolidate the interests of the large number of railroads entering the State and lying within it. The Southern Pacific Company controls and operates 6,000 miles of railroad and 7,000 miles of ocean steamship lines, the latter being in the Gulf of Mexico and the Atlantic Ocean. The three main arms of its railroad system are from San Francisco to New Orleans, from San Francisco to Ogden (where connection is made with the Union Pacific), and from San Francisco to Portland, Oregon. On these lines it controls numerous branches, which, especially in California, run from the main lines to fertile sections. The parent of the system is the Central Pacific, the first overland road, completed in 1869, and the great factor in the settlement and development of the State. There are numerous other roads within the State, nearly all of which enjoy prosperity. The Southern Pacific Company is steadily extending its branches within the State. In 1889 the outward overland freight hauled by this company was 594,486 tons, of which about 40 per cent. was east-bound. The number of overland passengers carried was 175,020, of which about 60 per cent. were west-bound.

The brilliant discoveries of metalliferous deposits in Nevada, wholly developed within the past forty years, have added much to the wealth and resources of California, for the ties of business are nearly as strong between the two States as if there were no political line of division between them. Nearly all the capital invested in the region at the eastern base of the Sierra came from the Pacific side of the mountains, and most of the machinery used there has been constructed in San Francisco. Nevada takes a large amount of the surplus agricultural products of California, and gives bullion in exchange, that being the only thing she produces for exportation.

CALIFORNIA, LOWER. Under this designation is comprised the whole peninsula, and it extends from Cape St. Lucas to the boundary between the United States and Mexico, which is a line "drawn from the middle of the Rio Gila, where it unites with the Colorado, to a point on the coast of the Pacific one marine league due south of the southernmost point of San Diego." The breadth of the peninsula varies very much, it being from five to six times as great between the parallels of 27° and 28° as it is opposite the Bay of La Paz. The area of Lower California has been estimated

at 58,000 square miles; the recent charts of the American Hydrographic Office, based on original surveys, make the peninsula narrower than it was formerly believed to be, and its area has not been computed since these surveys were made; it will probably not exceed 50,000 square miles.

The interior of Lower California is chiefly known to us, as to its physical and geological structure, from a reconnaissance made by Messrs. Gabb and Loehr, of the State Geological Survey of California, in 1867. This exploration was set on foot in order that some information might be obtained relative to the value of a concession made by the Mexican Government to an American company. This grant was expected to lead to a settlement of the country, but the whole thing turned out a failure.

According to this survey the peninsula is divided into three distinct portions. The northern and southern extremities have much in common with each other, while the middle division differs decidedly from the others in its physical characters. The most southern division consists chiefly of granitic rocks and high ranges, which with their spurs cover nearly the whole area from Cape St. Lucas to La Paz. Within this district, and lying between the spurs of the mountains, are many small valleys, some of which are very fertile, and well supplied with water. According to the American hydrographic charts, there are in this part of the peninsula two well-defined ranges, and the culminating point is given as 6,300 feet in altitude. It is in this region, about half-way from Cape St. Lucas to La Paz, that the principal mines of the peninsula are situated; and these are the only ones which, thus far, have proved to be of much value. They are in the districts of San Antonio and Triunfo. In 1867 these mines were producing at the rate of \$20,000 in value of silver per month; and, from recent newspaper notices, it would appear that they are still worked with success. The ores are, however, refractory and not easily treated.

Proceeding northwardly into the middle section of the peninsula, the granitic masses unite and form one mountain range, which runs parallel with the coast of the gulf, and at a distance of fifteen or twenty miles from it. It is known as the Sierra Gigantea, or del Gignate, and has an elevation of from 3,000 to 4,000 feet. Crossing this range and descending its western slope, its inclination is found to be very gradual, the granitic mass being flanked on that side by heavy accumulations of sandstone, which has a gentle dip away from the crest of the ridge. This sandstone is quite destitute of fossils, but is believed to be of Miocene age. It is cut by numerous volcanic dykes, and also contains great quantities of material of eruptive origin, in the form of interstratified masses. In this portion of the peninsula the settlements are confined to the eastern base of the Sierra Gigantea. Here, at numerous points along the coast, there are small valleys, with good harbors adjacent; and these little patches of country are very fertile and adapted to the growth of tropical and semi-tropical plants. By far the greater portion of the region, however, is extremely barren and forbidding; although occasional deep ravines and narrow valleys offer a marked contrast to the general sterility of the rest of the country. The northern division of the peninsula is considerably broken by mountain ranges, resembling in this respect the southern extremity. The culminating point is put down on the American hydrographic charts at 9,130 feet in altitude, and it is called Mount Calamahue. Between the ranges are broad valleys; covered with grass, and said to possess some agricultural value, although as yet almost entirely unoccupied.

The dryness of the climate is the characteristic feature of the peninsula of Lower California; and although there are no reliable statistics of the rainfall it is undoubtedly very small. It is, indeed, very irregular, there being long periods of absolute dryness, in certain regions at least. The yearly average fall over the whole peninsula, for a long period of years would perhaps not exceed three or four inches. As in the drier portion of Upper California, so here, when the rain does fall, it occasionally comes down in almost destructive quantity, over a very limited area, in the form of what are popularly known as "cloud-bursts."

Owing to the dryness of the climate in part, and also to the character of the Mexican Government, all the numerous attempts which have been made to settle Lower California have proved failures. The population at present is estimated at from 8,000 to 15,000, about two-thirds of whom live near the southern extremity of the peninsula. The harbors on both coasts are numerous, and that of Magdalena Bay is hardly inferior in extent and availability to the Bay of San Francisco itself. Whale-fishing on the west coast, and especially about Sebastian Viscaïno Bay, was, a few years ago, carried on very extensively. The pearl-fisheries of Lower California have also for many years been of some importance; they are conducted by companies, and the divers are chiefly Yuqui Indians. But in spite of many great advantages which the country otherwise possesses, the arid climate and the policy of the government must ever prevent its development.

CALIGULA, CAIUS CÆSAR, the third of the Roman emperors, was the son of Germanicus and Agrippina, and was born in 12 A.D. He was brought up in his father's camp among the soldiers, and received the name Caligula, from the name *caligæ*, or foot-soldiers' shoes, which he used to wear. In 32 he was summoned to Tiberius, who was then living at Caprææ, and did all in his power to ingratiate himself with the tyrant. Perhaps about 35 he married his first wife, Junia Claudia, who died in the following year. Caligula seems then to have resolved upon obtaining the succession to the empire. For this purpose he leagued himself with Macro, commander of the prætorian guards, whose wife he had seduced, and there can be no doubt that the death of Tiberius was hastened by one or both of them. The senate conferred the imperial power upon Caligula alone, although Tiberius, the grandson of the preceding emperor, had been designated as co-heir, and he entered on his first consulship in July 37. For an account of his reign and character see ROMAN HISTORY.

CALIPH, or KHALIF, the sovereign dignitary among the Mahometans, vested with an almost absolute authority in all matters relating to religion and civil polity. In the Arabic it signifies *successor* or vicar, the caliphs bearing the same relation to Mahomet that the popes, in the estimation of Roman Catholics, bear to St. Peter. It is at this day one of the titles of the grand seignior or sultan, who claims to be successor to Mahomet, through the line including Abu-Bekr, Oman, and Othman (the Sunnite view), and also of the Sophi or Sufi of Persia as claimant through Ali (the Shiite view). The history of the rule of the Sophis may occasionally remind the student of the saying current respecting Russian autocracy some fifty years ago, that it was "despotism tempered by assassination." When Louis XIV. was one day, in the presence of some courtiers, extolling the government of the Sophis as something approaching to an almost ideal excellence, the Marshal d'Estrees replied, "But, sire, I have seen three of them strangled during my lifetime." One of the chief functions of the caliph, in his quality of imaum or chief priest of Islamism, was to begin the public prayers every Friday in the

chief mosque, and to deliver the *khootba* or sermon. In after times they had assistants for this latter office; but the former was always performed by the caliph in person. The caliph was also obliged to lead the pilgrims to Mecca in person, and to march at the head of the armies of his empire. He granted investiture to princes and sent swords, standards, gowns, and the like, as presents to princes of the Mahometan religion, who, though they had thrown off the yoke of the caliphate, held of it as vassals. The caliphs usually went to the mosque mounted on mules; and the Seljukian sultans, though masters of Baghdad, held their stirrups and led their mules by the bridle some distance on foot, till the caliphs gave them the sign to mount on horseback. At a window of the caliph's palace there always hung a piece of black velvet 20 cubits long, which reached to the ground, and was called the *caliph's sleeve*; this the grandes of his court kissed daily with great respect. After the destruction of the caliphate by Hulgû, the Mahometan princes appointed a particular officer in their respective dominions to sustain the sacred authority of caliph. In Turkey this officer is called *mufti*, and in Persia *sadue*.

The successions of caliphs continued from the death of Mahomet till the 655th year of the Hegira, when Baghdad was taken by the Tatars. After this, however, there were persons who claimed the caliphate, as pretending to be of the family of the Abbassides, and to them the sultans of Egypt rendered great honors at Cairo, as the true successors of Mohammed.

CALISTHENICS. See GYMNASTICS.

CALITRI, a town of Italy, in the province of Principato Ulteriore and district of Sant' Angelo de' Lombardi, about forty miles southeast of Benevento.

CALIXTUS, the name of three different popes or bishops of Rome. Little is known of CALIXTUS I., bishop of Rome from about 220–226 A.D., during the reigns of Heliogabalus and Severus. CALIXTUS II., Guido of Vienne, was elected in 1119, after the death of Gelasius II. In 1122 he concluded with the Emperor Henry the important treaty of Mentz, by which the mutual rights of the church and the empire were definitely settled. He died in December, 1124. CALIXTUS III., Alphonso de Borgia, was raised to the Papal chair in 1455 at a very advanced age. He was feeble and incompetent. The great object of his policy was the excitement of a crusade against the Turks, but he did not find the Christian princes responsive to his call. He died in 1458.

CALIXTUS, GEORGIUS (1586–1656), a celebrated Lutheran divine, born at Middleburg in Holstein in 1586; died in 1656.

CALLA, an aquatic genus of Araceæ, with beautiful white spathes, cordate leaves, flowers crowded up to the extremity of the spadix, and red berries. *Calla palustris* is widely distributed through the marshes of palæ-arctic and neo-arctic regions, and acquires some economic importance in Lapland and parts of Russia (Vitebsk), being used in bread-making, after its acrid and poisonous properties have been removed by washing and cooking. The well-known and beautiful *Ricardia æthiopica*, often popularly called "Lily of the Nile," was formerly included in this genus.

CALLAO, the chief port of Peru, lies eight and one-half miles from Lima, the capital city. It is built on a flat point of land in the recess of a spacious and well-sheltered bay, which is partly inclosed by the islands of San Lorenzo and Fronton, and affords the best anchorage on the Peruvian coast. The modern town lies half a mile north of the site of an older city, destroyed by an earthquake and invasion of the sea in 1746. There are several forts mounting cannon, and among the public buildings are

the military and naval Government offices and barracks, three Catholic churches and a Protestant chapel, two clubs, a hospital, and four banks. Several newspapers are published in the town. Callao is the headquarters of the Pacific Steam Navigation Company in South America (incorporated in 1840), and the works in connection with their large fleet of steam-vessels—foundries, carpenters' shops, flour-mills, bakeries, and gas-works—occupy a large area near the custom-house. A large steam sugar-refinery is also in operation. Harbor works, consisting of sea walls of concrete blocks, and docks, with berthing space for thirty large vessels, begun in 1871, were completed in February 1875, superseding the old and inconvenient pier and boat harbor. These works comprise also eighteen steam-cranes for loading goods, a triple line of railway along the dock walls, gas illumination, and supplies of fresh water. A floating dock, 300 feet in length, capable of taking up a vessel of 21 feet draught, and 5000 tons' weight, was built in Glasgow and sent out to Callao harbor in 1863. The phenomenon of the bubbling up of sulphureted hydrogen gas in the harbor, known as "Callao painter," from its action on the paint of ships, has generally been ascribed to volcanic action, the belief having been that Callao is in the crater of an extinct volcano; but the borings for the new works discovered the cause of this to be in strongly impregnated springs forcing their way up through a stratum of clay and mud. Callao communicates with Lima by carriage road, and by a railway, completed in 1852, which is now extended through the capital towards Oroya over the Maritime Andes. The Pacific Company despatches or receives an ocean steamer almost every week to or from Liverpool by Valparaiso, the Strait of Magellan, and Rio de Janeiro; a separate bi-weekly steam line unites the port with Valparaiso, and communication is maintained with Panama by steamers four times a month each way. French and German steam lines have also headquarters at Callao. Trade is carried on mainly with Britain, the United States, France, Italy, Germany, Norway, and Central America, an average of nearly 2000 vessels entering the harbor annually, and frequently clearing in ballast for the Guano Islands, although exportation from the former main source of supply of guano—the Chincha Islands—ceased in 1872. This substance continues to be the most valuable export; after it come sugar, cotton, wool, hides, silver, and gold. Callao imports timber and railway material, wheat, ice, cattle, coal, and mixed cargoes of manufactures from foreign countries, and considerable quantities of flour from Chili. The whole value of imports and exports exceeds £6,000,000 annually. Since 1850, with the exception of the years between 1856 and 1861, when the immigration was prohibited by Congress, Chinese coolies have been imported in considerable numbers through Callao from the Portuguese possession of Macao in China. Perhaps 100,000 male Chinese have been introduced under contract to serve for eight years; the passages have too often been attended with great hardships and frightful mortality, but the Chinese prove valuable workers on the great railroads now constructing in Peru.

Though the climate of Callao is good, having the pure breeze from the Pacific, and a temperature rarely exceeding 77° or falling below 65° Fahr., yet in the absence of all hygiene, diseases, such as fevers and small-pox, are very prevalent, and the rate of mortality is high. The population in default of recent exact enumeration, may be taken at from 15,000 to 18,000; the census of 1866, the latest, gave 14,000, a decrease of upwards of 2000 in seven years, and the number was further reduced by the havoc made by yellow fever in

1868. The traffic and business, and with these probably the population of the port, are, however, increasing.

CALLCOTT, SIR AUGUSTUS WALL (1779-1844), Knt., R. A., one of the most distinguished of English landscape painters, was born at Kensington in 1779, and died there in 1844. His first study was music; and he sang for several years in the choir of Westminster Abbey. But at the age of twenty he had determined to give up music, and had exhibited his first painting at the Royal Academy. He gradually rose to distinction, and was elected an associate in 1807 and an academician in 1810. In 1827 he received the honor of knighthood; and seven years later, was appointed surveyor of the royal pictures. His two principal subject pictures — Raphael and the Fornarina, and Milton dictating to his Daughters, are much inferior to his landscapes, which are placed in the highest class by their refined taste and quiet beauty. Callcott always chose to paint nature in her lovely and placid aspect; and has therefore been called the English Claude.

CALLCOTT, JOHN WALL (1766-1821), brother of the preceding, was born at Kensington in 1766, and was the son of a builder. At the age of seven he was sent to a neighboring day school, where he continued for five years, studying chiefly Latin and Greek. During this time he frequently went to Kensington church, in the repairs of which his father was employed, and the impression he received on hearing the organ of that church seems to have roused his love for music. The organist at that time was Henry Whitney, from whom Callcott received his first musical instruction. He did not, however, choose music as a profession, being desirous to become a surgeon, only when on witnessing a surgical operation he found his nervous system seriously affected by the sight, he determined to devote himself to music. His intimacy with Dr. Arnold and other leading musicians of the day procured him access to artistic circles; and his successful competition for the prize offered by a musical society called the "Catch Club" soon spread his reputation as composer of glees, catches, canons, and other pieces of concerted vocal music.

CALLCOTT, MRS. MARIA GRAHAM (1786-1844), daughter of Admiral Dundas, became the wife of Sir Augustus Callcott in 1827. With her first husband, Capt. Graham, R.N., she travelled in India, South Africa, and South America, where she acted for some time as teacher of Donna Maria, who became queen of Portugal in 1826; and in the company of her second husband she spent much time in the south of Europe. She published accounts of her visits to India (1812), and to the environs of Rome (1820); *Memoirs of Pousin* (1820); a *History of France*; a *History of Spain* (1828); *Essays toward a History of Painting* (1836); *Little Arthur's History of England* (1836); and the *Scripture Herbal* (1842).

CALLIMACHUS, a celebrated Greek poet, was a native of Cyrene, and a descendant of the illustrious house of the Battiadæ, whence by Ovid and others he is called Battiades. He flourished under Ptolemies Philadelphus and Euergetes, and probably succeeded Zenodotus as chief librarian of the famous Alexandrian library, an office he held from about 260 B.C. till his death, which took place about 240 B.C. He was regarded, according to Quintilian, as the prince of Greek elegiac poets.

CALLIMACHUS, an architect and statuary, the inventor of the Corinthian column, was probably a native of Corinth. He is said to have derived the idea of the Corinthian capital from observing an acanthus plant surrounding a tile-covered basket which had been placed over a tomb. His era is uncertain; but as the Corinthian column was used in 396 B. C., by Scopas, the

architect of the temple of Athena Alea at Tegea, he must have lived before that time.

CALLIOPE, the muse of epic poetry. She was so named from the sweetness of her voice, and was the last of the nine sisters. Her distinguishing office was to record heroic actions; and she is represented with a tablet and style, or a roll of paper in her hand. See MUSES.

CALLIRRHÖE, in Greek legend, was a daughter of the river god Achelous, and became the wife of Alcmaeon, who had wandered from Argos to be purified in the water of the Achelous from the crime of having killed his mother Eriphyle. He had taken with him from Argos the ill-omened necklace and *peplos* of Harmonia, with which his mother had been misled by Polynices, but he had left them in Arcadia. Callirrhoe pressed so hard to obtain them that he was compelled to go for that purpose to Phegeus, the king of Psophis in Arcadia, with whom he had left them. While returning he was waylaid by Phegeus and killed. Callirrhoe now implored the gods to cause her two sons to grow at once to manhood to avenge their father's death. This was granted, and her sons slew Phegeus with his two sons, and returning with the necklace and *peplos*, dedicated them at Delphi.

CALLISTHENES, a philosopher of Olynthus, and a relation and pupil of Aristotle, through whose recommendation he was appointed to attend Alexander in his Asiatic expedition, 334 B.C. He had the imprudence to censure the conqueror's adoption of Oriental customs, inveighing especially against the servile ceremony of adoration. Having by the boldness of his censures rendered himself highly obnoxious to the king, he was accused of being privy to a treasonable conspiracy; and after being kept in chains for seven months he died, either by torture, or of a disease arising from excessive obesity. Callisthenes wrote an account of Alexander's expedition, a history of Greece, and other works, all of which have perished.

CALLISTO, in Greek Mythology, an Arcadian nymph, who was transformed into a bear as a penalty for having borne to Zeus a son, Arcas, from whom the Arcadians, or bear-people derived their name.

CALLISTRATUS, an Athenian orator, whose eloquence made such an impression on Demosthenes that he resolved to devote himself to oratory.

CALLISTRATUS, an Athenian poet, whose works have nearly all perished. He is now only known as the author of the hymn in honor of Harmodius and Aristogiton, who fell in their attempt to put down the dynasty of the Pisistratidæ at Athens.

CALLOT, JACQUES (1593-1635), a French engraver, was born in 1593 at Nancy in Lorraine, where his father was a herald at arms. He early discovered a very strong predilection for art, and at the age of twelve quitted home without his father's consent, and set out for Rome, where he intended to prosecute his studies. Being utterly destitute of funds he joined a troop of Bohemians, and arrived in their company at Florence. In this city he had the good fortune to attract the notice of a gentleman of the court, who supplied him with the means of study; but he removed in a short time to Rome, where, however, he was recognized by some relatives, who immediately compelled him to return home. Two years after this, and when only fourteen years old, he again left France contrary to the wishes of his friends, and reached Turin before he was overtaken by his elder brother, who had been despatched in quest of him. As his enthusiasm for art remained undiminished after these disappointments, he was at last allowed to accompany the duke of Lorraine's envoy to the Papal court. His first care was to study the art of design, of which in a

short time he became a perfect master. Philip Thomasin instructed him in the use of the graver, which, however, he ultimately abandoned, substituting the point as better adapted for his purposes. From Rome he went to Florence, where he remained till the death of Cosmo II., the Mæcenæ of these times. On returning to his native country he was warmly received by the then duke of Lorraine, who admired and encouraged him. As his fame was now spread abroad in various countries of Europe, many distinguished persons gave him commissions to execute. By the Infanta Isabella, sovereign of the Low Countries, he was commissioned to engrave a design of the siege of Breda; and at the request of Louis XIII. he designed the siege of Rochelle, and the attack on the Isle of Rhé. Shortly after this he returned to his native place, from which the king failed to allure him with the offer of a handsome pension. He died in 1635 at the age of forty-two. He engraved in all about 1600 pieces, the best of which are those executed in aquafortis.

CALMAR, or KALMAR, the capital of a province of the same name in Sweden, on Calmar Sound, opposite the island of Öland, about 190 miles from Stockholm. Calmar was once a flourishing and strongly-fortified town; and, previous to the conflagration of 1647, was built on the mainland. It is frequently mentioned both in the military and political annals of Sweden, and especially gives name to the treaty by which Sweden, Denmark, and Norway were, in 1397, erected into one kingdom under Queen Margaret. Population, 10,000.

CALMET, DOM AUGUSTINE (1672-1757), a scholar and Biblical critic, born at Mesnil-la-Horgue, in Lorraine, in 1672. In his fifteenth year he went to the university of Pont-a-Mousson, which he attended for a single session. In 1688 he joined the Benedictines at the abbey of St. Mansin, into whose order he was publicly received in the following year. His theological and philosophical studies he completed at the abbey of Munster, to which he was sent in 1704 with the rank of sub-prior. He here organized an academy of eight or ten monks, the sole business of whose life was to assist him in preparing his *Commentary on the Bible*. The publication of this voluminous work, begun in 1707, was not completed till 1716. Two years after this latter date he was rewarded for his services with a presentation to the abbey of St. Leopold at Nancy, and ten years after that to that of Sénonés, where he died in 1757. His attachment to his country and congregation was such, that he refused a bishopric *in partibus* offered to him by Pope Benedict XIII.

CALMUCKS, KALMUCKS, or KALMUIKS, a people of Mongolian race who inhabit various parts of the Russian and Chinese empires, as well as other portions of Central Asia. They are of the middle height, fairly proportioned, and of considerable strength; their cheek-bones are prominent, the chin short, the nose turned up, the beard thin, and their hair scrubby. For the most part still in the nomadic stage, they inhabit conical felt tents, which they set up in regular lines like the streets of a town. Their wealth consists entirely in small but high-spirited horses, excellent cattle, and broad-tailed, rough fleeced sheep. They are so much addicted to gaming that they not unfrequently stake everything they possess. In religion they are adherents of Lamaism, and their conduct is greatly under the control of their priests. Their language is closely connected with Mongolian proper, and is written with a similar alphabet; its grammar and vocabulary have been made known to Europeans more especially by A. H. Zwick about 1853. As early as the 16th century the Calmucks possessed an extensive district of Central Asia between the Altai mountains and Thian Shan, and between the desert of Gobi and the Balkash or Tengis

Lake; and they were also settled in what is now the southern part of Yeniseisk government, where indeed they were first met by Russian emigrants. At that time they bore the name of Derben Oirat, or Four Confederates, being divided into the four tribes of Jungars, Turguts, Khoshots, and Durbots. In the 17th century the Calmucks grew extremely strong, and after violent feuds united themselves, under the leadership of Batur and his son Galdan, into the powerful Jungarian kingdom. The strife which preceded the unification occasioned important movements of some Calmuck bands towards the E. and S.E. of Russia. Under Kourliuk, the great mass of the Turguts appeared for the first time within the Russian territory on the eastern side of the Volga in 1630. They conquered the nomadic Nogais of the district, but on the first occasion they turned back to the Kirghiz steppes. In 1636 as many as 50,000 *kibitkas*, or more than 200,000 men and women crossed the Emba, and took possession of the Trans-Volga steppes of the present Astrakhan government; and plundering incursions began to be made on the Russian settlements, in Saratoff, Penza and Tamboff, while Tobolsk, in Siberia, had to defend itself with arms in 1646. After the fall of Kourliuk, in an attack on Astrakhan itself, the Calmucks became less aggressive, and in 1655 passed of their own accord under Russian authority. Down to the middle of the 18th century bands, however, continued to arrive, and the depredations on Russian ground did not cease during all the long reign of the Khan Ayuka (1670-1724). This chief more than once broke his oath to the Russian Government; but he also on several occasions supplied very important contingents to the imperial army. His power is shown by the fact that his court was visited in 1713 by an ambassador from China. In the reign of the Empress Catharine the Russian Government created great discontent among the Calmucks by their general treatment, and still more by refusing to confirm Ubashi, the grandson of Ayuka, in his dignities. A Calmuck chieftain from Jungaria skilfully took advantage of this condition of affairs to persuade Ubashi and his subjects to return to Jungaria, and attempt its conquest. The result was the wonderful and disastrous flight of the Calmucks from Russia in 1771, so graphically described by De Quincey. The number of the fugitives amounted, according to some authorities, to 120,000. Harassed on all sides by savage troops of Cossacks and Khirghises, the wretched Calmucks pursued their way across the barren steppes, and their main body was routed in a terrible battle on the shores of the Balkash. The remnants were settled on the banks of the Ili by the Chinese emperor Kien Long, and there their descendants are still to be found. There still remained in Russia the Durbots, who were living in the Don territory, and those of the Astrakhan Calmucks who at the time of the flight happened to be on the right bank of the Volga. The total number now in the Russian empire may be estimated at 120,000. In the Chinese territory, where they are known as Eliots, or Olüts, their numbers are considerable, but are not precisely known.

CALNE, a town of England, in the county of Wiltshire, connected with the Great Western railway system by a branch line opened in 1863, and situated about 16 miles directly east of Bath.

CALOMÉL, mercurious chloride, or subchloride of mercury (HgCl), is a compound of mercury of great value in medicine. It occurs native as horn quicksilver in the mercury mines of Idria, at Obermoschel, in Bavaria, Horowitz in Bohemia, and Almaden in Spain, in the form of translucent tetragonal crystals, with an adamantine lustre, and a dirty white gray or brownish color.

Calomel is one of the mildest and most frequently employed of mercurial preparations, producing its effects with little local irritation. It exercises a powerful influence on the secreting organs, stimulating the liver and intestinal glands to increased activity, on which account it is much relied on in case of functional derangement of the liver.

CALONNE, CHARLES ALEXANDRE DE (1734-1802), a French statesman, was born in Douai in 1734. He was descended from a good family and entered the profession of the law, in which he rapidly attained success. He became in succession advocate to the general council of Artois, *procureur* to the parliament of Douai, and finally master of requests, a dignity which gave him the right of sitting in the general council. He seems to have been a man of great business capacity, gay and careless in temperament, and thoroughly unscrupulous in political action. In the terrible crisis of affairs preceding the French Revolution, when minister after minister tried in vain to replenish the exhausted royal treasury and was dismissed for want of success, Calonne was summoned to take the general control of affairs. He assumed office in 1783, and at first everything seemed to prosper. Money flowed in readily, and the gayety of the minister gave courage to the court. But his prosperity was hollow and rested on no secure foundation. Calonne had levied taxes until it was impossible to extract more from the impoverished people. He had borrowed until his credit was entirely gone, and he at last found himself compelled to disclose to the king the true state of affairs, and to lay before him what in his opinion was the only measure that could restore France. The first step in this proposed plan was the convocation of the notables, and the writs summoning them were issued in December, 1786. On February 22 of the following year Calonne disclosed to the notables his anxiously expected scheme for reconstituting the finances. The main provisions of this plan were the redistribution of the taxes, so that the whole might not fall on the unprivileged classes, the imposition of a land tax on the revenues of the nobles, and of a similar tax on the incomes of the clergy, and the abolition of *corvees* and the *gabelle*. All Calonne's eloquence could not succeed in rendering this scheme palatable either to the notables or to the people. The noblesse and clergy strenuously resisted any attempt to infringe upon their privileges, and the people were beginning to feel that in a convocation assembled to settle the affairs of France the nation itself had no part. Calonne had opened the floodgates, and was powerless to resist the torrent. His fall, however, was primarily due to the indignation of the court. He was dismissed from office in April and exiled to Lorraine. Soon afterward he passed over to England, and during his residence there kept up a polemical correspondence with Necker on the finances. In 1789, when the States-General were about to assemble, he crossed over to Flanders in the hope of being allowed to offer himself for election, but he was sternly forbidden to enter France. In revenge he joined the Bourbon party at Coblenz, wrote in their favor, and expended nearly all the fortune brought him by his wife, a wealthy widow. In 1802, having again taken up his abode in London, he received permission from Napoleon to return to France. He died October 30, 1802, about a month after his arrival in his native country. Calonne was the author of several works on the financial and political condition of France during the period of the Revolution, which are still of value.

CALORIC, a term given to a supposed imponderable fluid which was the cause of heat, and used loosely for heat.

CALORIMETER is an instrument for measuring the specific heat of a body; the determination being effected by ascertaining the quantity of ice at zero which is turned into water by the transference to it of heat from the body (at a known temperature) under examination.

CALPURNIUS, TITUS, a Roman bucolic poet, under whose name eleven eclogues have been transmitted to us, is interesting as the first imitator of Virgil in pastoral poetry, and from the controversy respecting his date.

CALTAGIRONE, or CALATAGIRONE, a town of Sicily, the seat of a bishop, in the province of Catania, and about thirty-four miles southwest of the city of that name, is situated on two rocky eminences united by a bridge, about 2,170 feet above the level of the sea. Population, 25,978.

CALTANISSETTA, or CALATANISSETTA, the capital of a province of the same name in Sicily, is situated in an extensive and fertile plain, dominated by Monte San Giuliano, near the right bank of the Salso, sixty-two miles southeast of Palermo. Population, 26,156.

CALTROP, a four-pronged piece of iron, each prong about four inches in length, formerly thrown down in warfare to check the approach of the enemy's cavalry over a plain, or of besiegers in the ditch of a fortification.

CALUMBA, or COLOMBO, used in medicine, is the root of *Jateorhiza palmata*, a Menispermaceous climber of Eastern Africa. Sliced and dried it has a greenish-yellow tint, a very bitter taste, and a faint aromatic odor. AMERICAN CALUMBA ROOT is obtained from *Frasera Walteri*, a gentianaceous biennial, and has properties like those of gentian.

CALUMET, the "peace pipe" of the North American Indians, is a pipe having a stem of reed or painted wood, decorated with feathers, with a large bowl, usually of red soapstone. It is smoked, in turn, by each member of a council or other important gathering. The presentation of it to strangers is a mark of hospitality, and to refuse it would be considered an act of hostility.

CALUMET, a thriving city of the northern peninsula of Michigan, is situated in Houghton county, forty-two miles north of L'Anse. It contains a bank, several churches and schools, and is a distributing point for a considerable section of country. Close to the town, and forming its chief support, are the famous Lake Superior copper mines, the richest in the world. Calumet has (1890) a population of 8,000.

CALVADOS, a department in the north of France, formed out of that part of Lower Normandy which comprises Bessin, Bocage, the Champagne de Caen, Auge, and the western part of Lieuvin. It is said to have received its name from a ledge of rocks, stretching along the coast for a distance of about fifteen miles between the mouths of the rivers Orne and Vire, on which the *Calvados*, a vessel of the Spanish Armada, was wrecked in 1858. The fisheries along the coast are extensive. Population, 475,000.

CALVART, DENNIS (1555-1619), a Flemish painter, born at Antwerp in 1555. His works are especially admired for the power of grouping and coloring which they display. He died at Bologna in 1619.

CALVARY, Vulgate *calvaria*, the Latin rendering of the Greek *kranion*, as that again of the Hebrew *golgotha* or *gulgalt*, all three words meaning "a skull." It lay beyond but near the city, and is identified with the old "House of Stoning," or place of public execution according to the laws of Moses, on the top of the remarkable knoll outside the Damascus gate on the north side of Jerusalem. In Catholic countries the

term Calvary is applied to an eminence crowned with one or three crosses bearing life-sized figures of Christ and the thieves, and surrounded sometimes by a number of figures, representing the various personages who took part in the crucifixion. Along the approach to such a Calvary—the *Via Dolorosa*, the Way of the Cross—are sculptured representations of the Stations of the Cross.

CALVERLEY, CHARLES STUART, the prince of modern English parodists, was the son of the Rev. Henry Blayds, who in 1852 took the name of Calverley, and was born on December 22, 1831. He died at Folkestone on February 17, 1884. Calverley will be remembered by his two little volumes, *Verses and Translations* (1862), and *Fly Leaves* (1872). His parodies, particularly that of Jean Ingelow, are the best that have appeared since the *Rejected Addresses*.

CALVERT, GEORGE, LORD BALTIMORE (1582–1632), one of the principal secretaries of state under James I., was born at Kipling in Yorkshire in 1582. He was educated at Oxford, and after traveling on the Continent entered public service as secretary to Robert Cecil, afterward earl of Salisbury. In 1617 he was knighted, and in 1619 he was made one of the principal secretaries of state. He retained office for five years, at the end of which time he resigned, alleging as a reason that he had recently adopted the Catholic faith. He still continued at court, however, in the capacity of a privy-councilor. In 1625 he was made Baron Baltimore, in the county of Longford, Ireland, and among other rewards he received for his services was a patent as lord of the province of Avalon in Newfoundland. As this colony was much exposed to the attacks of the French he left it, and obtained another patent for Maryland, in the north of Virginia. He died in 1632.

CALVERT, the county seat of Robertson county, Tex., is situated eighty-five miles northeast of Austin, the State capital. It contains a bank, a newspaper office, and cotton-seed oil mills. Population, 3,000.

CALVI, a fortified town in Corsica, the capital of an arrondissement, is situated on a peninsula in the bay to which it gives its name. Population, 2,500.

CALVILLO, a Mexican town in the State of Aguas Calientes. Population, about 5,000.

CALVIN, JOHN (1509–64), was born at Noyon, in Picardy, July 10, 1509.

Of Calvin's early years only a few notices remain. His father destined him from the first for theological studies, being moved to this by the evidences afforded in his boyhood of a religious tendency, and perhaps also by a shrewd apprehension of the kind of pursuits in which he was most fitted to excel. The esteem in which his father was held opened for the boy a place in the household of the noble family of De Montmor, where he received his elementary education along with the children of the house, though at his father's expense. In his thirteenth year his father, whose circumstances were not affluent, procured for him from the bishop the office of chaplain in the Chapelle de Notre Dame de la Gesine. A few days after his appointment he received the tonsure, and on May 29, 1521, he was installed in his office. The plague having visited Noyon, the young De Montmors were sent to Paris to pursue their studies there, and thither Calvin accompanied them, being enabled by the income received from his benefice to meet the expense of a residence in the metropolis. His first school was the Collège de la Marche, at that time under the regency of Maturin Cordier, a man of excellent character, of sound learning, and of high repute as a teacher. From this institution he removed to the Collège Montaigne, where he had for instructor a Spaniard, who is described as a man of learning, and to whom Calvin

was indebted for the culture of his already acute intellect, by the study of dialectics and the scholastic philosophy. Whilst at school the future reformer distinguished himself by his superior abilities, and his indefatigable assiduity. Intensely devoted to study he cared little for the pastimes in which his fellow scholars indulged; he shunned society, and was more disposed to censure the frivolities of those around him than to seek the solace of their companionship; severe to others, he was still more so to himself, and his pale face and attenuated frame bore witness at once to the rigor of his abstinence. In his nineteenth year he, through the influence of his father, obtained the living of Marteville, to which he was presented on September 27, 1527. After holding this preferment for nearly two years, he exchanged it in July, 1529, for the cure of Pont l'Évêque, a village near Noyon, and the place to which his father originally belonged. He appears to have been not a little elated by his early promotion, and although not ordained, he preached several sermons to the people. But though the career of ecclesiastical preferment was thus early opened to him, Calvin was destined not to become a priest of the Church of Rome. A change came over the minds of his father and himself respecting his future career. Gerald Calvin, looking at things from a worldly point of view, began to suspect that he had not chosen the most lucrative profession for his son, and that the law offered to a youth of his talents and industry a more promising sphere. His son, on the other hand, had come under an influence of a very different kind, but which, with still more decisive impulse, inclined him to relinquish the ecclesiastical life. Through the counsels of his relation, Pierre Robert Olivetan, the first translator of the Bible into French, he had been led for the first time to study the sacred volume, and to test his religious opinions and practices by its dictates. The result was that, though not yet detached from the faith of the Roman church, he was very willing to relinquish all thoughts of becoming a priest in that communion. He accordingly readily complied with his father's suggestion, and having resigned his cure, he removed from Paris to Orleans, in order to study law under Pierre de l'Etoile, a distinguished jurisconsult, and at that time professor there.

From Orleans Calvin went to Bourges to prosecute his studies under a learned Italian of the name of Alciati, whom Francis I. had invited into France, and settled as a professor of law in that university. Here he became acquainted with Melchior Volmar, a German, then professor of Greek at Bourges, and a man of sound erudition, as well as exemplary character. By him Calvin was taught Greek, and introduced to the study of the New Testament in its original language, a service which he gratefully acknowledges in one of his printed works.

His residence at Bourges was cut short by the sudden death of his father, which occasioned his return to his native place. Immediately after his father's decease, he seems to have paid a hasty visit to Paris, and then to have returned to Noyon, where he resided for a couple of years or so. At the close of this period he appears to have returned to Paris, where he apparently resided from 1529 to 1532, as letters written by him are dated from Paris in these years. While there he lodged with a tradesman, Etienne de la Forge, who early fell a victim to his zeal for the Reformation, and "whose memory," Calvin says, "should be blessed among believers as a holy martyr for Christ." In his house the friends of evangelical truth were wont to meet, and Calvin not only associated with them, but frequently preached in their assemblies. To the great joy of all such, he at

length entirely relinquished his legal pursuits and devoted himself afresh to theology,—giving himself up wholly to the work, preaching with great energy, and using all the means in his power to win converts to the truth, as well as to confirm those by whom it had been already embraced. By this time the Reformation had attracted so many adherents in France, that the upholders of the established system became infuriated, and attempted to stay its further progress by the most cruel persecutions. It was whilst these were raging that Calvin issued his first publication, an edition of Seneca's tract *De Clementia*, with an elaborate commentary.

This work was published in April 1532, and seems to have brought Calvin more of honor than of profit. He at this time also relinquished the ecclesiastical preferments which he had hitherto continued to hold, an act which, though demanded by the change that had taken place in his religious views, was entirely voluntary on his part, and, when viewed in connection with his then straightened circumstances, must be put to the credit of his integrity and disinterestedness. He was now in his twenty-fourth year, and was already recognized as at the head of the Reformation movement in France. An occasion soon occurred which brought him into open collision with the dominant party. Nicholas Cop, the newly elected regent of the Sorbonne, had to deliver an oration according to custom in the Church of the Maturins, on the feast of All Saints. Being intimate with Calvin, he pronounced an oration which the latter had prepared for him, "of a totally different sort," says Beza, "from what was customary." It was, in fact, a defence of the Reformed opinions, especially of the doctrine of justification by faith alone. This was more than the Sorbonnists could bear, and Cop, being summoned to appear before the parliament, found it necessary to make his escape from Paris to Basel. An attempt was at the same time made to seize Calvin, but being forewarned of the design by his friends, he also made his escape. His lodgings, however, were searched, and his books and papers seized, to the imminent peril of some of his friends, whose letters were found in his repositories. He himself retired first to the castle of Lord de Hazeville near Mantes, and after that to Saintonge, where he was the guest of Louis du Tillet, a canon of Angoulême, and where at the request of his host he prepared some short discourses, which were circulated in the surrounding parishes, and read in public to the people. He subsequently removed to Nerac, the residence of the queen of Navarre, the only sister of Francis I., who then favored the Reformers, and through whose intercession the storm that had broken out against them was for the time abated. Here he became acquainted with the venerable Jacques Lefevre d'Estaples, a scholar and man of science, whom the queen had rescued from the fury of the Sorbonnists, and engaged as tutor to her children. By him Calvin was warmly received, and his future eminence as a reformer of the church predicted.

His residence in that retirement continued only for a very few months; for, in 1534, we find him first at Noyon, his native place, and soon after again in Paris. Here he was compelled to remain concealed, in consequence of the measures which the enemies of the Reformation were still pursuing against its adherents.

The *Psychopannychia* was published in 1534 at Orleans, whither Calvin had been constrained, in consequence of the violence of the persecution at Paris, to retreat. On his way thither he stopped for some time at Poitiers. Here many gathered around him desirous of instruction from him; and in a grotto near the town he celebrated for the first time the communion in the Evangelical Church of France, using a piece of the rock

as a table. From this time forward his influence became supreme, and all who had imbibed or become tinged with the Reformed doctrines in France turned to him for counsel and instruction, attracted not only by his power as a teacher, but still more, perhaps, because they saw in him so full a development of the Christian life according to the evangelical model. M. Renan, no prejudiced judge, pronounces him "the most Christian man of his time," and attributes to this his success as a reformer. Certain it is that already he had drawn upon him the notice of those who were seeking to extinguish in blood the light which had been kindled, and which he was so prompt to hold up to view; so that he was obliged to seek safety in flight. In company with his friend Louis du Tillet, whom he had again gone to Angoulême to visit, he set out for Basel. On their way they were robbed by one of their servants, who so entirely stripped them of their property, that it was only by borrowing ten crowns from their other servant that they were enabled to get to Strasburg, and thence to Basel. Here Calvin was welcomed by the band of scholars and theologians who had conspired to make that city the Athens of Switzerland, and especially by the learned Simon Grynæus, and by Wolfgang Capito, the leader of the Reformation at Basel. Under the auspices and guidance of the latter, Calvin applied himself to the study of Hebrew.

Francis I., desirous to continue the persecution of the Protestants, but anxious at the same time not to break with the Protestant princes of Germany, resorted to the unworthy expedient of instructing his ambassador to assure the latter that it was only against the Anabaptists, and other parties who called in question all civil magistracy, that his severities were exercised. Calvin, indignant at the calumny which was thus cast upon the Reformed party in France, hastily prepared for the press his *Institutes of the Christian Religion*, which he published as a confession of the Reformed faith, and dedicated to the king. This work Calvin says he wrote in Latin that it might find access to the learned in all lands. Soon after it appeared he set about translating it into French, as he himself attests in a letter dated October 1536. In its first form the work consisted of only six chapters, and was intended merely as a brief manual of Christian doctrine. It appeared anonymously, the author having, as he himself says, nothing in view beyond furnishing a statement of the faith of the persecuted Protestants, whom he saw cruelly cut to pieces by impious and perfidious court parasites. In this work, though produced when the author was only twenty-five years of age, we find a complete outline of that theological system which has since borne his name. In none of the later editions, nor in any of his later works, do we find reason to believe that he ever changed his views on any essential point from what they were at the period of its first publication. Such an instance of maturity of mind and of opinion at so early an age, would be remarkable under any circumstances; but in Calvin's case it is rendered peculiarly so, by the shortness of the time which had elapsed since he gave himself to theological studies. It may be doubted also if the history of literature presents us with another instance of a book written at so early an age, which has exercised such a prodigious influence upon the opinions and practices both of contemporaries and of posterity.

After a short visit to the court of the duchess of Ferrara, which at that time afforded an asylum to several learned and pious fugitives from persecution, Calvin returned to France to arrange his affairs before finally taking farewell of his native country. His intention was to settle at Basel, and to devote himself to study. But being unable, in consequence of the disturbed state of

the country, to reach Basel by the ordinary route, he had to take the route through Geneva. Whilst in this city his further progress was arrested, and his resolution to pursue the quiet path of studious research was dispelled, by what he calls the "formidable obtestation" of Farel. After many struggles and no small suffering, this energetic spirit had succeeded in planting the evangelical standard at Geneva; and anxious to secure the aid of such a man as Calvin, he entreated him on his arrival to relinquish his design of going farther, and to devote himself to the work in that city. Calvin consented to remain at Geneva, where he was immediately appointed teacher of theology.

Calvin was in his twenty-eighth year when he was thus constrained to settle at Geneva; and in this city the rest of his life, with the exception of a brief interval, was spent. The post to which he was thus called was not an easy one. Though the people of Geneva had cast off the yoke of Rome, they were still "but very imperfectly enlightened in divine knowledge; they had as yet hardly emerged from the filth of the papacy." This laid them open to the incursions of those fanatical teachers, whom the excitement attendant upon the Reformation had called forth, and who hung mischievously upon the rear of the reforming body. To obviate the evils thence resulting, Calvin, in union with Farel, drew up a condensed statement of Christian doctrine, consisting of twenty-one articles. This the citizens were summoned, in parties of ten each, to profess and swear to as the confession of their faith—a process which, though not in accordance with modern notions of the best way of establishing men in the faith, was gone through, Calvin tells us, "with much satisfaction." As the people took this oath in the capacity of *citizens*, we may see here the basis laid for that theocratic system which subsequently became peculiarly characteristic of the Genevan polity. Deeply convinced of the importance of education for the young, Calvin and his coadjutors were solicitous to establish schools throughout the canton, and to enforce on parents the sending of their children to them; and as he had no faith in education apart from religious training, he drew up an elementary catechism of Christian doctrine which the children had to learn whilst they were receiving secular instruction. Of the troubles which arose from fanatical teachers, the chief proceeded from the efforts of the Anabaptists; but these Calvin and his colleagues so effectually silenced by means of a public disputation held on the 18th of March 1537, that they never afterwards appeared at Geneva. In the course of this year also, the peace of Calvin and his friends was much disturbed, and their work interrupted, by a turbulent and unprincipled preacher named Peter Caroli, who, after many changes of religious profession (with none of which, however, had he associated anything of true religion, or even much of ordinary morality), had assumed the character of a stickler for orthodoxy. In this character he accused the Geneva divines of Sabellianism and Arianism, because they would not enforce the Athanasian creed, and had not used the words "Trinity" and "Person" in the confession they had drawn up. In a synod held at Bern the matter was fully discussed, when a verdict was given in favor of the Geneva divines, and Caroli deposed from his office and banished.

Hardly was the affair of Caroli settled, when new and severer trials came upon the Genevan Reformers. The severe simplicity of the ritual which Farel had introduced, and to which Calvin had conformed; the strictness with which the ministers sought to enforce not only the laws of morality, but certain sumptuary regulations respecting the dress and mode of living of the citizens;

and their determination in spiritual matters not to submit to the least dictation from the civil power, led to such violent dissensions that Calvin and his colleagues refused to administer the sacrament to the people. For this they were banished from the city. They went first to Bern, and soon after to Zurich, where a synod of the Swiss pastors had been convened. Before this assembly they pleaded their cause, and stated what were the points on which they were prepared to insist as needful for the proper discipline of the church. They declared that they would yield in the matter of ceremonies so far as to employ unleavened bread in the eucharist, to use fonts in baptism, and to allow festival days, provided the people might pursue their ordinary avocations after public service. These Calvin regarded as matters of indifference, provided the magistrates did not make them of importance, by seeking to enforce them; and he was the more willing to concede them, because he hoped thereby to meet the wishes of the Bernese brethren, whose ritual was less simple than that established by Farel at Geneva. But he and his colleagues insisted, on the other hand, that for the proper maintenance of discipline, there should be a division of parishes—that excommunications should be permitted, and should be under the power of elders chosen by the council, in conjunction with the clergy—that order should be observed in the admission of preachers—and that only the clergy should officiate in ordination by the laying on of hands. It was proposed also, as conducive to the welfare of the church, that the sacrament of the Lord's Supper should be administered more frequently, at least once every month, and that congregational singing of psalms should be practiced in the churches. On these terms the synod interceded with the Genevese to restore their pastors; but through the opposition of the Bernese this was frustrated, and a second edict of banishment was the only response.

Calvin and Farel betook themselves, under these circumstances, to Basel, where they soon after separated, Farel to go to Neufchatel, and Calvin to Strasburg. At the latter place Calvin resided till the autumn of 1541, occupying himself partly in literary exertions; partly as a preacher in the French church, and partly as a lecturer on theology. In 1539 he attended the convention of Frankfort as the companion of Bucer, and in the following year he appeared at that at Hagenau and Worms, as the delegate from the city of Strasburg. He was present also at the diet at Ratisbon, where he became personally acquainted with Melancthon, and formed with him a friendship which lasted through life. It is to this period of his life that we owe the completed form of his *Institutio*, his Commentary on the Epistle to the Romans, and his Tract on the Lord's Supper.

During his absence, disorder and irreligion had prevailed in Geneva. An attempt was made by Sadolet, bishop of Carpentras, to take advantage of this so as to restore the papal supremacy in that district; but this design Calvin, watchful over the interests of his ungrateful flock, though exiled from them, completely frustrated by writing such a reply to the letter which the bishop had addressed to the Genevese, as constrained him to desist from all further efforts. He seems also to have kept up his connection with Geneva by addressing letters of counsel and comfort to the faithful there who continued to regard him with affection. It was whilst he was still at Strasburg that there appeared at Geneva a translation of the Bible into French, bearing Calvin's name, but in reality only revised and corrected by him from the version of Olivetan. Meanwhile the way had been opened for his return to the post whence he had been driven in that city. In the summer of 1541, the decree of his banishment was revoked, and in

the following September he yielded to the earnest entreaties of his now penitent flock, and returned to Geneva, where he was received with the utmost enthusiasm.

Of the controversies in which Calvin embarked, one of the most important was that in which he defended his doctrine concerning predestination and election. The most memorable of all the controversies in which Calvin was engaged, was that into which he was brought in 1553 with his old antagonist Servetus. After many wanderings, and after having been condemned to death for heresy at Vienna, from which he was fortunate enough to make his escape, Servetus arrived in July 1553 at Geneva. He appears to have remained in quiet here for some time, and was about to leave for Zurich when, at the instigation of Calvin, he was arrested and conveyed to prison on the charge of blasphemy. This charge was founded on certain statements in a book published by him in 1553, entitled *Christianismi Restitutio*, in which he animadverted in terms needlessly offensive on the Catholic doctrine of the Trinity, and advanced sentiments strongly savoring of Pantheism. At the trial which followed Calvin appeared as his accuser, and the conflict was conducted between the two with much ability on both sides, and at the same time with no small keenness and bitterness. After a protracted trial, the accused was condemned to be burnt to death, and was accordingly burned at Champel near Geneva, on the 27th of October 1553. Farel attended him in his last hours, and accompanied him to the place of execution. He had an interview also with Calvin on the morning of the fatal day, when he asked his forgiveness, but refused to retract any of his expressions. Calvin has been much censured, not to say vituperated, for his share in this unhappy transaction. In order to aggravate the charge against him it has been alleged that it was by his invitation that Servetus came to Geneva, that it was by his urgency that the magistrates, over whom his influence was unbounded, condemned Servetus to death, and that it was to gratify a personal pique and through hatred of Servetus that he thus cruelly and relentlessly pursued him. Of these allegations not one can be proved, and some are undoubtedly false. It is not true that Calvin induced Servetus to come to Geneva; on the contrary, when Servetus intimated a wish to visit that city if it pleased Calvin that he should do so, Calvin intimated very plainly that it did not please him, and refused to pledge himself for his safety should he come, as he was resolved, should he come, to prosecute him to the death. That Calvin influenced the magistrates to condemn Servetus is true only in the same sense in which any public prosecutor who pleads before the judge for the condemnation of one against whom he brings a criminal charge, may be said to influence the judge to condemn him. As for the assertion that Calvin's influence with the magistrates was unbounded, this falls to the ground before the fact that at this time he was in a state of antagonism with the dominant party. That Calvin hated the doctrines which he found in Servetus's book there can be no doubt, and that he thought the author of such views as were there advanced deserving of death, if he refused when reasoned with to recant, is unhappily true; but that he was actuated by personal spite and animosity against Servetus himself there is no evidence; on the contrary we have his own express declaration that after Servetus was convicted, he used no urgency that he should be put to death, and at their last interview he told Servetus that he never had avenged private injuries, and assured him that if he would repent it would not be his fault if all the pious did not give him their

hands. There is the fact also that Calvin used his endeavor to have the sentence which had been pronounced against Servetus mitigated, death by burning being regarded by him as an "atrocious," for which he sought to substitute death by the sword. All that can be justly charged against Calvin in this matter is that he took the initiative in bringing on the trial of Servetus, that as his accuser he prosecuted the suit against him with undue severity, and that he approved the sentence which condemned Servetus to death.

The heresy of Servetus was not extirpated by his death, but none of his followers were visited with severer penalties than that of banishment from Geneva. The trials of several of these, with the conferences and controversies connected with them, occupied much of Calvin's time for several years. He was also involved in a protracted and somewhat vexing dispute with the Lutherans respecting the Lord's Supper, which ended in the separation of the evangelical party into the two great sections of Lutherans and Reformed,—the former of whom hold that in the eucharist the body and blood of Christ are objectively and consubstantially present, and so are actually partaken of by the communicants, whilst the latter maintain that there is only a virtual presence of the body and blood of Christ, and consequently only a spiritual participation thereof through faith. In connection with these controversies on points of faith, Calvin was for many years greatly disquieted, and sometimes even endangered, by the opposition offered by the libertine party in Geneva to the ecclesiastical discipline which he had established there. His system of church policy was essentially theocratic; it assumed that every member of the state was also under the discipline of the church; and he asserted that the right of exercising this discipline was vested exclusively in the consistory or body of preachers and elders. His attempts to carry out these views brought him into collision both with the authorities and with the populace,—the latter being enraged at the restraint imposed upon the disorderly by the exercise of church discipline, and the former being inclined to retain in their own hands a portion of that power in things spiritual which Calvin was bent on placing exclusively in the hands of the church rulers. His dauntless courage, his perseverance, and his earnestness at length prevailed, and he had the satisfaction, before he died, of seeing his favorite system of church polity firmly established, not only at Geneva, but in other parts of Switzerland, and of knowing that it had been adopted substantially by the Reformers in France and Scotland. Nor was it only in religious matters that Calvin busied himself; nothing was indifferent to him that concerned the welfare and good order of the state or the advantage of its citizens. His work, as has been justly said, "embraced everything;" he was consulted on every affair, great and small, that came before the council,—on questions of law, police, economy, trade, and manufactures, no less than on questions of doctrine and church polity. To him Geneva owed her trade in cloths and velvets, from which so much wealth accrued to her citizens; sanitary regulations were introduced by him which made Geneva the admiration of all visitors; and in him she reverences the founder of her college, which still flourishes, and from which so many learned men have gone forth.

Amidst these multitudinous cares and occupations, Calvin found time to commit to writing a number of works besides those provoked by the various controversies in which he was engaged.

But it is chiefly as a theologian and the head of a theological school that Calvin is now known. His theological system is developed in his *Institutio*, which, though produced originally at an early period of his life, was

so frequently and carefully revised by him, that in the form in which it has come down to us it presents his most matured views and thoughts. In some of his tracts and polemical writings certain of his doctrines are more fully expounded, illustrated, and defended; but nowhere has he advocated any tenet which is not in substance to be found in the *Institutio*.

Much of Calvin's theology is common to him with all evangelical divines, and in the parts which are more peculiar to him and his school he follows closely in the steps of Augustine.

The incessant and exhausting labors to which Calvin gave himself, could not but tell on the strongest constitution: how much more on one so fragile as his! Amid many sufferings, however, and frequent attacks of sickness, he manfully pursued his course for twenty-eight years; nor was it till his frail body, torn by many and painful diseases—fever, asthma, stone, and gout, the fruits for the most part of his sedentary habits and unpausing activity—had, as it were, fallen to pieces around him, that his indomitable spirit relinquished the conflict. In the early part of the year 1564 his sufferings became so severe that it was manifest his earthly career was rapidly drawing to a close. On the 6th of February of that year he preached his last sermon, having with great difficulty found breath enough to carry him through it. He was several times after this carried to church, but never again was able to take any part in the service. With a noble disinterestedness he refused to receive his stipend, now that he was no longer able to discharge the duties of his office. In the midst of his sufferings, however, his zeal and energy kept him in continual occupation; when expostulated with for such unseasonable toil, he replied, "Would you that the Lord should find me idle when He comes?" After he had retired from public labors he lingered for some months, enduring the severest agonies without a murmur, and cheerfully attending to all the duties of a private kind which his diseases left him strength to discharge. A deep impression seems to have been made on all who visited him on his deathbed; they saw in him the noble spectacle of a great spirit that had done its life-work, calmly and trustfully passing through the gate of suffering into the long-desired and firmly-expected repose of heaven. He quietly expired in the arms of his faithful friend Beza, on the evening of the 27th of May, in the fifty-fifth year of his age.

Calvin was of middle stature; his complexion was somewhat pallid and dark; his eyes to the latest clear and lustrous, bespoke the acumen of his genius. He was sparing in his food and simple in his dress; he took but little sleep, and was capable of extraordinary efforts of intellectual toil. His memory was prodigious, but he used it only as a servant of his higher faculties. As a reasoner he has seldom been equalled, and the soundness and penetration of his judgment was such as to give to his conclusions in practical questions almost the appearance of predictions, and inspire in all his friends the utmost confidence in the wisdom of his counsels. As a theologian he stands on an eminence which only Augustine has surpassed; whilst in his skill as an expositor of Scripture, and his terse and elegant style, he possessed advantages to which Augustine was a stranger. His private character was in harmony with his public reputation and position. If somewhat severe and irritable, he was at the same time scrupulously just, truthful and steadfast; he never deserted a friend or took an unfair advantage of an antagonist; and on befitting occasions he could be cheerful and even facetious among his intimates. "I have been a witness of him for sixteen years," says Beza, "and I think I am fully entitled to say that in this man there was exhibited to all an ex-

ample of the life and death of the Christian, such as it will not be easy to depreciate, such as it will be difficult to emulate".

CALVISIUS, SETHUS (1556–1617), a German astronomer and chronologer, was born at Groschleben, in Thuringia, in 1556.

CALYDON, an ancient town of Ætolia, 7½ miles from the sea, on the River Evenus. It was said to have been founded by Calydon, son of Ætolus; to have been the scene of the hunting, by Meleager and other heroes, of the famous Calydonian boar, sent by Artemis to lay waste the fields; and to have taken part in the Trojan war.

CALYPSO, in Grecian mythology, was a daughter of Oceanus and Tethys, or of Nereus, or of Atlas, and reigned in the mythical island of Ogygia. When Ulysses was shipwrecked on her shores, Calypso entertained the hero with great hospitality; and by the united influence of her love and spells, she prevailed upon him to remain and share her honors. In this manner seven years had been spent, when Ulysses was seized with an irresistible desire to revisit his native country. Calypso tried every expedient, and even the promise of eternal youth, to induce the hero to remain; and when all her efforts had proved unavailing, and he set sail, grief at his departure occasioned her death.

CAM, DIOGO, a Portuguese discoverer, of noble birth, belonging to the latter half of the 15th century, is famous for having carried on, under Alphonso V., the discoveries in Western Africa commenced by Don Henry.

CAMALDULIANS, CAMALDUNIANS, or CAMALDOLITES, an order of religious persons, founded by Romuald, an Italian, in the beginning of the 11th century, in the desolate waste of Camaldoli, or Campo Malduli, on the lofty heights of the Apennines. Their rule was that of St. Benedict.

CAMARGO, a town of 5,000 people, in the State of Tamaulipas, Mexico.

CAMARINA, an ancient city of Sicily, situated on the south coast, near the mouth of the Hippuris or Fiume di Camarana, as it is still called, about 20 miles E. of Gela or Terranova. It was originally founded by the Syracusans in the 6th century B.C., but was shortly afterwards destroyed by the mother city, because it had thrown off its allegiance. Restored in 495 B.C. by Hippocrates of Gela, it was again depopulated by Gelon, the conqueror of Syracuse, and did not receive a permanent establishment till 461. During the next century the mainspring of its political action was usually antipathy to Syracuse, but on the Athenian invasion it ultimately sent assistance to the beleaguered city. The Carthaginians struck a severe blow at its prosperity in the 5th century B.C., and in 258 a large part of its inhabitants were sold as slaves by the Roman consuls. The town continued to exist in the 2d century of the Christian era, and its site is still marked by a considerable mass of ruins.

CAMBACÉRÈS, JEAN JACQUES REGIS DE (1753–1824), an eminent French statesman under the first republic and the first empire, was born at Montpellier the 18th October 1753, of an old and distinguished family. Being destined for the profession of law, he began his studies in that department at an early age, and was soon recognized as one of the ablest jurists in France. And as his legal learning was one of the main sources of his fame, so it was his chief means of rendering service to his country. Cambacérès was a decided though moderate disciple of the new principles now everywhere diffused in France, and on the assembling of the States-general in 1789 was chosen as a second representative for the nobility of the district of Montpellier.

The right of Montpellier to send a second noble deputy was disputed, and Cambacérès did not sit. But he was a member of the National Convention in 1792. Foreseeing the violent courses into which the Convention should be impelled, Cambacérès, from principle as well as necessity, held aloof, and sought to avoid the perils and excesses of the time by confining himself to the neutral province of jurist and legislator. The trial of the king, however, compelled him to declare himself. In the first place, he maintained that the Convention was not competent to try the king; and when the trial had been decided on, he insisted that all latitude of defence ought to be accorded to the royal counsel. As to the sentence, he found the king guilty, and worthy of the punishment due to one who had conspired against his country; but moved for delay in the execution of it, till peace should be restored, or the French soil invaded. This moderation made Cambacérès a "suspect" in the eyes of the Mountain, and he confined himself more circumspectly than ever to his proper work of revising and codifying the new laws. On the downfall of Robespierre in 1794, he was a leading man in the restoration of a milder régime. He was sometime president of the Convention, and, subsequently, president of the Committee of Public Safety, in which capacity he helped to the conclusion of peace with Prussia and Spain. Under the Directory he again fell under the suspicion of the extreme party, and was obliged to retire from the presidency of the Five Hundred, to which he had been called. He took no part in the revolution of the 18th Brumaire (9th November 1799), which overturned the Directory and set up the consulate; but Napoleon had such confidence in him that he made him second consul. This confidence Cambacérès continued to enjoy all through the consulate and the empire. On the establishment of the empire he became arch-chancellor, being life-president of the Senate, and the right-hand man of Napoleon in the civil administration generally. While loyal to his master, his influence was on the whole beneficial to France. He took an important part in the redaction of the Code Napoléon, tried to dissuade Napoleon from the murder of the Duc d'Enghien and from the disastrous campaigns of 1812 and 1813, and only gave in his adhesion to the act of abdication of 1814 when resistance was manifestly hopeless, while he resumed office with reluctance during the Hundred Days.

At the final restoration of Louis XVIII. in 1815, Cambacérès again became an object of persecution, this time as a regicide, and was obliged to retire into Belgium. A royal decree of 1818 restored him to all his civil and political rights, but he did not again emerge from private life. He died in 1824.

CAMBALUC is the name by which, under sundry modifications, the royal city of the Great Khan became known to Europe during the Middle Ages, that city being in fact the same that we now know as Peking. The word itself represents the Mongol *Kaan-Baligh*, "the city of the khan," or emperor, the title by which Peking continues, more or less, to be known to the Mongols and other northern Asiatics.

A city occupying approximately the same site had been the capital of one of the principalities into which China was divided some centuries before the Christian era; and during the reigns of the two Tartar dynasties that immediately preceded the Mongols in Northern China, viz., that of the Khitans, and of the *Kin* or "Golden" khans, it had been one of their royal residences. Under the names of Yenking, which it received from the Khitan, and of Chungtu, which it had from the Kin, it holds a conspicuous place in the wars of Chinghiz Khan against the latter dynasty. He captured

it in 1215, but it was not till 1264 that it was adopted as the imperial residence in lieu of Kara Korum in the Mongol steppes, by his grandson Kublaï.

The city, under the name of Cambaluc, was constituted into an archiepiscopal see by Pope Clement V. in 1307, in favor of the missionary Franciscan John of Montecorvino; but though some successors were nominated it seems probable that no second metropolitan ever actually occupied the seat.

CAMBAY, or KAMBAY, a town of Western India, in Guzerat, or the northern division of the province of Bombay, and forming the capital of the native state of the same name, which has an area of about 350 square miles, and a population of about 175,000. It is situated on the River Mahi, at the upper part of the Gulf of Cambay, 230 miles N. of Bombay. It is supposed to be the *Camanes* of Ptolemy, and was formerly a very flourishing city, the seat of an extensive trade, and celebrated for its manufactures of silk, chintz, and gold stuffs; but owing principally to the gradually increasing difficulty of access by water, its commerce has long since fallen away, and the town has become poor and dilapidated.

CAMBERT, ROBERT (1628–1677), the earliest composer of French opera, was born at Paris in 1628.

CAMBODIA, more properly CAMBOJA, or KAMBOJA, a very ancient kingdom of South-eastern Asia, still subsisting in decay.

Both the ethnology and the early history of Camboja partake of the obscurity that hangs over Indo-China generally. But traditions of the ancient grandeur of the kingdom are borne out by the recent exploration of numerous architectural remains of extraordinary extent and magnificence within its former limits. Some important notices are found in Chinese annals, and more information is to be expected when numerous existing inscriptions shall have been successfully interpreted.

The great river *Mekong*, known also as the Camboja River, a name bestowed when its delta yet belonged to Camboja, flows through the existing territory for about 250 miles, from N.E. to S.W. This river as a whole will be better dealt with elsewhere (see MEKONG). The next main feature of the present limited territory is the "Great Lake," as it is called by the Cochin-Chinese (*Bienhoa*), or "Freshwater Lake" of the Cambojans (*Talé-Sab*),—by the Malays styled the Lake of Sri Rama. This lake is of the nature of those sheets of water which in Bengal are called *jhils*, viz., a shallow depression in an alluvial plain, retaining a part of the annual overflow of the rivers throughout the year, and hence subject to great variations in depth and extent. The lake is an object of superstitious regard to the people, and the fishery therein is the most important event in their annual life. It is carried on in the dry season, during which time extensive pile-villages are erected in the lake, where the drying and salting of the fish are carried on. The dried fish is exported largely to Cochin-China, as well as live fish in cages. Much also is converted into oil.

The *elephant* may be regarded as the characteristic animal of Camboja. Wild herds are numerous, and frequent the shores of the lake in the dry season. The tamed animals are by no means so well trained as in India, but they are the chief beasts of burden, and a few years ago did not cost more than £10 or £12. The *rhinoceros* also abounds (the species we do not find stated) about the foot of the mountains north of the lake. Strong and handsome *ponies* are bred, much in demand at Bangkok. Among wild animals there are said to be three species of *wild cattle*.

Vegetable products are nutmeg, liquorice, caoutchouc and gutta-percha, tobacco, sapan-wood, pepper,

rice, cotton, &c., with benzoin from the Upper Mekong. Additional exports of various sorts are hides and horns, tortoise-shell, lac, ivory, and dried elephant flesh. Iron of excellent quality is smelted and wrought by some of the hill tribes.

Of the numerous wild, or we should rather say *illiterate*, tribes on the borders of the Cambojan plain, and still imperfectly known, we cannot speak in our limited space. The Cambojans proper, or *Khmér*, differ much from both Siamese and Cochinchinese. They are described as tall, well and strongly made, showing less of Mongoloid feature than any of the better known nations of Indo-China; good-natured but apathetic, and leaving all the trouble and gains of trade to Chinese, Anamites, and Malays. Their religion is Buddhism of the usual Indo-Chinese type. But like the other races of that region they call in the devil-dancing medicine-man in illness. They cut the hair short, leaving a top-tuft, and wear the *langúti*, or loin-cloth, tucked between the legs, using that Hindu name for it.

There are some 2000 Roman Catholic Christians in the country, and some considerable number of Malay and Tsiam Mahometans. The Malays are chiefly on the coast, and claim to be very ancient settlers.

The government is an absolute monarchy, after the usual Indo-Chinese kind, with a second king or cæsar, the *Yuvarāja* of ancient India, known by a corruption of that title.

The most important remains are all in what is now Siamese territory, north of the Great Lake. The remains embrace walled cities of large extent; palaces and temples, stupendous in scale and rich in design, and often most elaborately decorated with long galleries of architectural antiquities storied bas-reliefs; artificial lakes enclosed by walls of cut stone; stone bridges of extraordinary design and excellent execution; elaborate embanked highways across the alluvial flats, &c. Were it possible to reconcile the geography, they would almost justify the extravagant fictions of Mendez Pinto regarding the palaces and temples of Timplan and Timagogo.

About fifteen miles north of the lake, buried in forest, is the ancient capital, commonly called *Angkor* or *Nakhon* (both corruptions of the Indian *Nagara*) *Thom*, or "the Great City," the proper old name of which was *Inthapataburi*, i. e., Indraprasthapuri, after the capital of the Pandus in the ancient India of the Mahābhārat.

CAMBORNE, a small town in the county of Cornwall, about thirteen miles by rail southwest of Truro.

CAMBRAY, in German Kamerik, or Kambryk, a fortified town of France, in the department of Nord, situated on the right bank of the Scheldt, thirty-two miles south of Lille. Population, 22,897.

Cambray is the ancient Nervian town of *Camaracum*, which is first mentioned in the Antonine Itinerary. In the fifth century it was the capital of the Frankish king Ragnachar. Fortified by Charlemagne, it was captured and pillaged by the Normans in 870, and unsuccessfully besieged by the Hungarians in 953. In 1478 Louis XI., who had obtained possession of the town on the death of the last duke of Burgundy, handed it over to the emperor, and in the sixteenth century Charles the Fifth caused it to be fortified with a strong citadel, for the erection of which the castles of Cavillers, Escaudœuvres, and many others were demolished. From that date to the peace of Nimeguen, which assigned it to France, it frequently passed from hand to hand by capture or treaty.

CAMBRIA, the ancient name of Wales, the *Britannia Secunda* of the Romans. It is derived from the word Cymry, or Kymry, the name by which the Welsh have always called themselves, and appears in "Cambrian Mountains," and "Cambrian System." *Cum-*

bria, the name of the old British kingdom, also called Strathelyde, and *Cumberland* are other derivatives.

CAMBRIAN SYSTEM. This is the name given to the great series of sedimentary deposits which comes next in order of succession to the Archæan System. Wherever the base of these deposits can be seen, the beds are found to rest unconformably upon the Archæan, or as they are sometimes termed, the pre-Cambrian, rocks. There is some diversity of opinion as to the upper limits of the Cambrian. The British Cambrian rocks are best developed in North Wales, and are also well represented in Shropshire, etc.

CAMBRIC, a general term applied to the finest and thinnest of linen fabrics, said to be derived from Cambrai, where such goods were first made. Some of the finest cambrics of the present day are produced in Switzerland. Scotch cambric is really a muslin, being made of cotton with the fiber twisted very hard.

CAMBRIDGE, COUNTY OF, one of the smaller English counties, belonging to the South Midland division of England, is about 45 miles in length and 30 in breadth. It contains, according to the census of 1871, 524,926 statute acres. It is divided by the old course of the River Ouse into Cambridge proper and the Isle of Ely.

Cambridgeshire is one of the chief corn-producing counties. A part of the county near the south-west border was formerly called the Dairies; and large dairy farms are still found producing cheese very similar to the best Stilton. The census of 1871 returned 25 per cent. of the male population as agricultural laborers, farm-servants, and shepherds. Although the county is entirely agricultural, mainly arable, with some wheat and pasture crops, many busy trades are also carried on,—brewing and malting, brick-making, lime-burning. There is a great deal of boat-building, and there are many seamen employed on the navigable cuts. The climate of the county is generally healthy, but it would be premature to say that ague is altogether banished from the fen country.

There are some remains of Roman camps; a few only of Norman castles. In the southern part of the county are four great dykes. They once formed the boundary between East Anglia and Mercia; each extended from fen land to wooded country, crossing the open intervening space. The chief of these fosses was the Devil's Ditch; another was the Fleam or Balsham Dyke; the others were the ditches of Breat and Bran. All these were most probably of British origin.

Though Cambridge is the county town, Ely is the one city of Cambridgeshire. It derived its name from the abundance of the eels which were found there. It was situated on the largest of the island that rose above the level of the Fens, which in winter were surrounded by water, and were only accessible by certain passes or gates. (See ELY). The other Cambridgeshire towns are soon enumerated.

CAMBRIDGE, the chief town of the above county, and the seat of a famous university, is situated on the Cam, in the midst of a healthy fertile country, which for the most part has been reclaimed from the fens. The trade of the town is derived from its being the centre of an agricultural district, and from the custom of the resident members of the university. The Cam changes its name to the Ouse as the Isis does to the Thames, and Cambridge is the head of navigation for barges from King's Lynn, which before the railways was connected with a very considerable business. Cambridge is now a chief station on the Great Eastern line, and is also connected with the Great Northern, the London and the North-Western, and the Midland lines. A large market is held on Saturdays. The town has returned two

members since the time of Edward I. It is a very ancient corporation, and under the Municipal Reform Act is governed by a mayor, ten aldermen, and thirty common councilmen. The university, a corporation separate from the borough, also returns two members. The town owes its existence mainly to the university, which over-shadows it in importance. In this respect Cambridge and Oxford differ from all other universities, which are generally absorbed in the town in which they are situated. Cambridge, like Oxford, is of a singularly unique character, and affords examples of architecture from the drawings of authentic history to the more modern structures designed to meet the wants of our own day. The original Cambridge was the ancient Roman *Camboritum*, a small settlement on the left or north bank of the Cam or Granta. A castle was built to overawe the fen country, of which some ruins may be traced, and Roman coins from the time of Vespasian downwards have been found. In Anglo-Saxon times the river was called Granta, and the Roman town Grantchester, a name which still survives in the present village near the town. The modern name was derived from a great stone bridge, the only one in those parts that was thrown across the Cam, probably in old Roman days. Bede gives Cambridge or Grantchester the epithet of "desolate." It was exposed to the assaults of the Danes and repeatedly plundered. In the days of Edward the Elder we find that Grantbridge, a derivation of Cambridge is giving its name to a shire, in a new division of Mercia. In the 11th century the borough began to expand beyond the narrow Roman limits. A population grew up by degrees on the other side of the river. Religious foundations gradually took their place in the borough. We begin to have authentic annals in the 12th century. Learned men came hither anxious to teach, and scholars anxious to be taught. The students first lived in the houses of the townsfolk, as in German and Scottish universities; we afterwards find hostels, where students and teachers lodged together. It is probable that the great Benedictine monasteries of the Fens may have had a part in the origin of the university. We find Henry III. (1231) issuing writs for the regulation of Cambridge "clerks," and making mention of chancellor and masters. A few years later we find the king entrenching the town with two gates, which, however, were burnt by the barons. In Wat Tyler's insurrection the colleges were attacked and ransacked by the rabble, it was supposed with the connivance and assistance of the Cambridge townsfolk, but were repulsed by the young bishop of Norwich. The first two Stuart kings and the first two Hanoverian kings cultivated friendly personal relations with the university. In the Civil War many of the colleges sent their plate to King Charles, but town and university without actual conflict came into the obedience of the Commonwealth. In other respects Cambridge has been so fortunate as hardly to possess any history.

We proceed to notice somewhat in detail the remarkable structures which have now a European reputation. Although there is no street to equal the glorious High Street of Oxford, yet the long street which begins with the Trumpington road, and then as a narrow lane fronts Sepulchre Church, is lined with the most important colleges. What is called "the backs of colleges," where the Cam wanders beneath frequent arches through groves and gardens, has a more unique beauty than Oxford or any other university town can display. Within recent years there have been constant changes at Cambridge, and the aspect of the place has been materially altered; there have been great demolitions and reconstructions, and some very fine edifices have been added. The Fitzwilliam Museum, as we first enter

Trumpington Street, is a very striking edifice, and as large funds from time to time are accumulated for its extension, it will become increasingly valuable. Recently it has at a great expense received a remarkable amount of color and decoration. The columned façade with its portico and colonnades, is considered by some the most striking piece of architecture in the kingdom. It was the foundation of Viscount Fitzwilliam, an Irish peer, who bequeathed to the university his picture gallery, including fine examples of the greatest masters, 120 folio volumes of engravings, a valuable library, and £100,000. Various other valuable collections have from time to time been gathered into the Fitzwilliam Museum. The sculpture gallery is peculiarly rich. There are also Colonel Leake's Greek vases, the Disney marbles, the Ellison collection of modern painters, the Mesmer collection. At a short distance from the Fitzwilliam, at the end of a water-course, is Hobson's Conduit, removed here from the market-place, where it stood from 1614 to 1856. Hobson was a great benefactor to Cambridge, and is commemorated by Milton. The Pitt Press is found in this line of street, with a very church-like appearance. It was erected in memory of William Pitt the statesman. Adderbrooke Hospital, the Botanic Garden (arranged after De Candolle's system), the Anatomical Museum, and the Observatory, are very much worthy of examination. The renowned Senate-house, the centre of the university, is remarkable for its elaborate finish and perfect proportions. In this fine room the university examinations are held and degrees are bestowed. The scenes witnessed here when the mathematical honor list is issued, and on the degree day following, are a very interesting episode of university life. The senior wrangler of the year receives a mighty ovation. Very near the Senate-house is the University Library; the Georges were great benefactors to both. It is one of the few libraries entitled to copies of all new books. The number of books and MMS. is about half a million. The most remarkable MS. is that known to scholars as D, the *Codex Bezae*, the uncial MS., or vellum of the four Gospels and the Acts, presented by Theodore Beza. The front of the library is an Italian balustraded arcade; the basement story of the quadrangle is called "the Schools," a much more limited expression than the same Oxford term. In the "school" were once carried on the lectures and disputations from which "wranglers" and "sophs" derived their names. One part of the schools is devoted to the Woodwardian or Geological Museum, enriched by the collections of the late Professor Sedgwick. He taught geology to undergraduates in visiting the neighborhood with them. Close to this is the Mineralogical Museum, enriched with diamonds presented by the late Lord Alford. The fine new buildings of the Union Society are noticeable. Various Cambridge churches are very interesting.

Each College in Cambridge has its separate interest, — something remarkable in chapel, hall, or library, in garden or gallery. We shall rapidly indicate some distinctive features in each. The largest of the colleges is Trinity, the largest collegiate foundation in Europe. It is on both sides of the street, for a new court, the Master's Court, was built at the expense of Dr. Whewell, and his cipher, W. W., is on the capacious tower. The King's Gateway is the entrance to this famous college. The great canopied statue is that of Henry VIII., in whose time this vast portal was built by the scholars of Trinity. We pass into the great court with its velvet sward and the lofty stone conduit, known as Nevill's Fountain. On one side is the Master's Lodge, with a fine collection of portraits, and a set of state rooms. On the same side is the lofty Gothic hall, with a high-peaked Flemish

roof. In term time when the great hall, with its painted glass and armorial bearings, is crowded with students, the sight is remarkable enough. On entering the chapel the ante-chapel should be carefully noted, with the statue of Newton in a sitting posture, the statue of Barrow, a statue of Macaulay, and recently has been added one of Whewell. A second great gateway, with the niched statue of Edward III., leads into the second court. On the south is a third gateway with four towers on the angles, called, from a statue of Queen Elizabeth in her robes, the Queen's Gateway. The library was begun by Barrow and designed by Wren. It is the most classic building in the university—in Wren's favorite style of the old Italian. It overlooks the river, and below the library is a colonnade opening on the bridge and the Lime Walk. In the value of its contents this library ranks next to the university library; it possesses the mathematical MSS. of Newton and the poetical MSS. of Milton. It numbers nearly 100,000 volumes. The woodwork is by Gibbons; the series of marble busts by Roubillac. Recent additions have been made of the busts of Professor Sedgwick, Mr. Tennyson, and Mr. Ellis. At the end of the room is Thornwaldsen's statue of Lord Byron, which was refused admission into Westminster Abbey.

The next largest college is St. John's, which is famous for its series of splendid improvements.

St. Peter's College, or Peterhouse, is the oldest of the colleges.

King's College owns that magnificent chapel which widely dominates over all the buildings in the town and university. The college was originally commenced and endowed by Henry VI., in connection with Eton.

Caius (pronounced Key's) College, in point of size, is the third college in the university. It has a somewhat special character, being termed the Medical College. The founder was a physician high in favor with Philip and Mary. His tomb, with the inscription "Fui Caius," is the great ornament of the chapel.

Queen's College is the work of the two rival queens of the Red Rose and the White, Margaret of Anjou and Elizabeth Woodville, who are always regarded as co-foundresses. Erasmus took up his abode here and promoted the new learning. His study is supposed to have been in the south-west tower of the old court. The chapel has been beautifully restored in recent years. A quaint bridge, called the "mathematical bridge," leads into the garden or wilderness on the other side of the Cam. On the south side of the Cloister Court is Erasmus's Court.

Clare College consists of a single court, and is remarkable for its finished beauty, with "more purity and grace than any other example which can be named." The bridge, avenue, and lawn are noticeable. This college is supposed to be Chaucer's "Soler Hall at Cantabrage." Once one of the largest, it is now one of the smallest colleges. Here "Ignoramus" was acted before the delighted James I. Emmanuel College has a peculiar interest of its own. Once its site was occupied by a house of Dominican friars, and it subsequently became the chosen college of the Puritans.

Sidney Sussex College has a history very parallel to that of Emmanuel College. They were together styled in the time of Charles I. "nurseries of Puritanism." Oliver Cromwell was a member of this college, and the best extant likeness of him is to be found here. Next to this college is Christ's, opposite to which a street runs westward that has some curious old houses and an old name, Petty Curey, the meaning of which has been much discussed; it most probably means "little cookery." Some of the latest restorations now in progress are in Pembroke. When Queen Elizabeth saw

this college she exclaimed, "Oh domus antiqua et religiosa!" but the peculiar features which give this college its picturesque appearance are being inexorably sacrificed to modern requirements. Jesus College stands pleasantly back from the public road, surrounded with gardens and meadows. The ivied walls have a very pleasant aspect. The college chapel is a very noble one, and may rank after King's College chapel and the new chapel of St. John's. It is among the most magnificent of the recent restorations at Cambridge. Magdalene College is the only college on the north side of the Cam. It boasts three libraries,—the college library, the Peckard library, and the Pepysian library. The last contains the Pepy's MS. and much old black-letter literature. The last of the Cambridge colleges is Downing College. It was only founded in the year 1800, with large bequests from a Cambridgeshire baronet. The borough population of Cambridge is 30,078.

CAMBRIDGE, a city of the United States, in the county of Middlesex, Massachusetts. It lies on Charles River, three miles N.W. of Boston, with which it is connected by two bridges, with long causeways, and by horse railroads or tramways. It is the seat of Harvard University, the oldest, richest, and most thoroughly equipped literary institution in the United States. Connected with the university is an observatory. Under the name of Newton a settlement was made on its territory, then much more extended than at present, by some of the first company of English colonists on Massachusetts Bay in 1630. It was then proposed to make it the capital of the colony; but the neighboring peninsula of Boston was found more convenient for commerce and defence against the Indians. The order of the colony court in 1636 having provided for planting a college at Newton, its name was changed to Cambridge, in honor of the English university town, where some of the leading men of the colony had been educated. The first company of settlers, being Mr. Hooker's church and congregation, moved to Connecticut in 1636, to find better farm-land. Their rights were purchased by another body of colonists just arrived from England. The present site of the college halls was originally "fortified" by palisades, within which the settlers found protection at night for themselves and their cattle against a possible inroad of the savages. Here was set up the first printing-press in the United States, and from it issued John Eliot's translation of the Bible, for the Indians in their own language. Under the title of "Cambridge Farms," the present town of Lexington, incorporated as such in 1712, was a part of the original town. The town of Brighton, now annexed to the city of Boston, formerly South Cambridge, or Little Cambridge, was separated and received its present name in 1807; and the west part of the original settlement, known as Menotomy, was marked off in the same year, as West Cambridge, now known as Arlington. Between this place and Cambridge is North Cambridge; and the districts of the city nearest to Boston, by the two bridges, are called Cambridge Port and East Cambridge. Cambridge was incorporated as a city in 1846. It is for the most part level, with much marsh land near the river, portions of which are in process of being reclaimed. The cemetery of Mount Auburn is on the western border of the city. The population (1890 census) is 69,837.

The system of public schools is very complete and efficient, including a high school, 7 grammar schools, 18 primaries, and a training school,—with 183 teachers; cost of maintenance, \$260,187.47. Cambridge was the site of the camp of the first American army, at the outbreak of the War of the Revolution with Great

Britain. From it went the detachment which intrenched on Bunker's Hill; and here Washington took command of the army, July 3, 1775.

CAMBRIDGE, a railroad town, the county seat of Guernsey County, Ohio, with a population of 4,345. It has considerable trade.

CAMBYSES, a Persian royal name, derived from the Greek Cambyzes, in which form it appears in Herodotus and in the Greek writers generally.

The persons known by the name of Cambyzes belong to the Archæmenian line of Persian kings. It is thought that the great grand-father of Cyrus the Great was thus called. The evidence, however, for the existence of this Cambyzes, though strong, is constructive rather than direct. It is certain that the father of Cyrus was named Cambyzes. He is called by Herodotus "a Persian of good family," but by Xenophon he is denominated "king of the Persians." The justness of this title is proved by an inscription on a brick found at Senkereh, in which Cyrus calls himself "the son of Cambyzes, the powerful king," as well as by the statement of Darius Hystaspis, in the Behistun inscription, that eight of his Archæmenian ancestors had been kings. During the reign of this Cambyzes the Persian nation was included in the Median empire, and he is represented as the vassal of the Median king Astyages. At the same time he is said to have married Mandane, the daughter of Astyages, by whom he became the father of Cyrus.

The only other, and the best known, king of this name is the elder son and successor of Cyrus, who reigned over the Persian empire, according to Herodotus, for seven years and five months—from 529 to 521 B.C. Of his proceedings before his famous invasion of Egypt little is known. To this period we must now, on the authority of the Behistun inscription (i. 10), in opposition to Herodotus (iii. 30), assign the secret murder of his brother, Bardiya (the Smerdis, Merdis, Mardus, or Mergis of the Greeks,—called Tanyoxarces by Ctesias, and Tanyoxares by Xenophon). Egypt at this time lay on the borders of the Persian empire; its subjugation had long been an object of ambition to the great Asiatic conquerors; it had recently provoked reprisals from Persia by sending help to Lydia against Cyrus; and in resolving to attack that country Cambyzes was both carrying out the settled policy of his predecessors and accomplishing the purpose of his own father. If therefore, as is not unlikely, there was such an occasion given for the enterprise as that which Herodotus relates, it is not necessary to suppose that this was more than a pretext. A year or two were spent in collecting the forces of the empire, and the preparatory measures taken seem to have been marked by prudence and skill. A fleet of Phœnician and Greek ships was collected to operate against the vessels of the Egyptians; and the help of an Arabian chief was secured to provide water for the army in crossing the desert on the south and west of Palestine. The old king of Egypt, Amasis, under whom the country had enjoyed a long period of peace and prosperity, died a few months before the invasion, and was succeeded by his son Psammenitus, under whom the measures of defence proved unsuccessful. An obstinately contested but decisive victory was gained by the Persian arms near Pelusium, and this was speedily followed up by the siege and capture of the capital, Memphis, and by the subjugation of the whole country. The date of this conquest is commonly regarded as 525 B.C.

Henceforward the life and activity of Cambyzes centred in his new dominion. We know from an important hieroglyphic inscription proceeding from a priest of Neith at Saïs, that he assumed the responsibilities and titles proper to a king of Egypt, taking as his

throne-name that of Ramesut. Moreover, it is evident that for a time at least he cultivated the good-will of his new subjects. We learn that he took Egyptians who had been officers of Psammenitus into his immediate service; that he sought instruction in regard to the rites of their religion, and was initiated into certain of its mysteries; that he listened to complaints in regard to the profanation of the temples by Persian and other foreign soldiers, and gave orders for their removal from the sacred precincts; that he secured the priests in the receipt of the temple-revenues, and arranged for the due and continued celebration of the customary ceremonies and festivals. A monument is still extant on which he is represented adoring, on bended knee, the god Apis. (See De Rougé, *Mémoire sur la statue naophore du Vatican*, passim; Brugsch, *op cit.*, vol. i. pp. 266, f.; Lauth, *op cit.*, pp. 17, f.) One act, indeed, of a different complexion is reported by Herodotus (iii. 16), viz., his outraging and finally consuming by fire the embalmed body of Amasis,—an act, the historian assures us, which shocked the feelings alike of Egyptians and of Persians, and which strongly attests the same jealous and resentful temper which prompted the murder of his brother.

After having established himself in his new position, Cambyzes, Herodotus informs us, planned three expeditions. One was against Carthage, in regard to which, however, he was thwarted by the refusal of his Phœnician mariners, who formed the principal portion of his sea-forces, to operate against their kindred. Another was directed against the Oasis and Temple of Jupiter Ammon in the desert west of Egypt, the issue of which was that the whole of the force sent on this enterprise, numbering, it is said, 50,000 men, perished in the sand. The third was intended for the subjugation of the Ethiopians on the south of Egypt, and of this Cambyzes himself took the command. The army, however, had marched less than a fifth of the distance when their provisions failed, and they were reduced to the utmost straits,—even, it is said, to cannibalism. Cambyzes was thus forced to retrace his steps and to lead back the remnant of his army to Egypt in disappointment and disgrace.

Under the smart of this threefold discomfiture the conduct of Cambyzes towards the Egyptians assumed a new and much more stern and cruel aspect. The people of Memphis were rejoicing on occasion of the discovery of a calf bearing the marks of their god Apis, when he arrived there on his return from his unfortunate expedition. Irritated by their apparent lack of sympathy, and misconstruing their joy, he ordered some of the magistrates of the city to be put to death; and what was still more fatal to his popularity, he commanded the newly-found god to be led into his presence, and inflicted upon it with his dagger a mortal wound. The epitaph of this unfortunate god "has been found by M. Mariette in the Serapeum, and is now in the museum of the Louvre." We hear also of his violating the sepulchres of the Egyptians, and of his penetrating into the sanctuaries of their gods, and making sport of the more grotesque images. According to Herodotus, it seemed to the Egyptians that he had gone mad; and it is certain that they retained the most gloomy recollections of this period of their history.

After an absence from Persia of several years, Cambyzes having appointed Aryandes, a Persian, governor of Egypt, set out on his homeward march. He was met, according to Herodotus, at a place in Syria called Agbatana, supposed by some to be Batanæa, or Bashan, by others to be Hamath, by the tidings of the Median revolution, the usurpation of the sovereignty by Gomates, the Magian, and the impersonation by the

usurper of his own brother, whom, as has been noticed, he had caused to be secretly murdered. Springing hastily upon his horse, his sword fell from the sheath and wounded him mortally in the thigh.

CAMDEN, the county seat of Ouachita county, Ark., is situated on the right bank of the Ouachita river, at the head of low-water navigation, 100 miles from Little Rock. Its chief industry is the shipping of cotton, and it contains foundries, flouring mills, woolen factories, eight churches, and a bank. Population (1890), 4,400.

CAMDEN, a town of Knox county, Me., on Penobscot Bay, eight miles northeast of Augusta. The manufactures include woolen goods, pumps, anchors, etc., and the town has a bank, a newspaper office, several churches and schools. Population in 1890, 4,621.

CAMDEN, the capital of Camden county, N. J., situated on the left bank of the Delaware river, directly opposite Philadelphia, with which it is connected by a regular steamboat service. It lies eighty-seven miles southwest of New York, and is the terminus of several railway lines. Among its public buildings the chief place is held by the court-house and the railway stations; and its principal industrial establishments are iron-foundries, saw-mills, chemical works, glass-works, shipyards, and engineering factories. The city received its charter in 1831; and gas-light was first introduced in 1852. Population in 1890, 58,313.

CAMDEN, the capital of Kershaw county, S. C., thirty-three miles northeast of Columbia on the Wateree river, which is navigable for steamboats as far as the town. It contains an arsenal, an academy, and a library, and is altogether a flourishing little town. It is best known as the scene of two battles—the first fought in 1780 between Gates and Cornwallis, and the second in 1781 between Greene and Rawdon. Population in 1890, 2,000.

CAMDEN, WILLIAM (1551–1623), a celebrated antiquary and historian, was born in London, May 2, 1551. He was a man of great modesty and integrity, profoundly learned in the history and antiquities of England, and a judicious and conscientious historian. The Camden Society, founded in 1838 for historical research, was so named in honor of him. His greatest and most useful work is the *Britannia*. It was first translated into English, and published in folio in London in 1611.

CAMDEN, CHARLES PRATT, EARL, AND VISCOUNT BAYHAM (1713–1794), chief-justice of the Common Pleas, lord chancellor of England, and president of the council, was born in 1713. He was a descendant of an old Devonshire family of high standing, and third son of Sir John Pratt, chief-justice of the King's Bench in the reign of George I. He received his early education at Eton College, whence he passed, at the age of seventeen, to King's College, Cambridge. In 1734 he became a fellow of his college, and in the following year obtained his degree of B.A. Having adopted his father's profession, he had entered the Middle Temple in 1728, and ten years later he was called to the bar. He practised at first in the courts of Common Law, traveling also the western circuit. In 1740 he took his degree of M.A. The first case which brought him prominently into notice and gave him assurance of ultimate success was the Government prosecution, in 1752, of a bookseller, William Owen, for a libel on the House of Commons. Pratt was engaged as junior counsel for the defence, and he made his mark in an earnest and powerful speech, which contributed to the verdict for the defendant. In 1753 he undertook the defence of Murphy, who stood charged with the forgery of a will. Four years later, through the influence of William Pitt (afterwards earl of Chatham), with whom he had formed an intimate friendship while at Eton, he received the

appointment of attorney-general. The same year he entered the House of Commons as member for the small borough of Downton in Wiltshire, which was subsequently disfranchised. His professional practice now largely increased. One of the most noticeable incidents of his tenure of office as attorney-general was the prosecution of Dr. Shebbeare, a violent party writer of the day, for a libel against the Government contained in his notorious *Letters to the People of England*, which were published in the years 1756–1758. In July 1765 he was raised to the peerage as Baron Camden, of Camden Place, in the county of Kent; and in the following year he was removed from the court of Common Pleas to take his seat as lord chancellor (July 30, 1766). He retired from the Court of Chancery in January 1770, but he continued to take a warm interest in the political affairs and discussions of the time. In his speeches in the House of Lords he sometimes showed a strong ill-feeling against his great opponent, Lord Mansfield, on the doctrine of libel. He continued steadfastly to oppose the taxation of the American colonists, and signed, in 1778, the protest of the Lords in favor of an address to the king on the subject of the manifesto of the American commissioners. In 1782 he was appointed president of the council under the Rockingham administration, but retired in the following year. Within a few months he was reinstated in this office under the Pitt administration, and held it till his death. Earl Camden died in London April 18, 1794.

CAMEL, the *Djmal* of the Arabs and *Gamal* of the Hebrews, a genus of Ruminant Mammals, which, with the South American llamas, form the family *Camelidae*, and which in their dentition, in the absence of horns and of hoofs completely enveloping the toes, and in the separation of the navicular and cuboid bones of the tarsus, show an affinity with certain of the Perissodactyle *Ungulata*. In common with the llamas, and unlike all other ruminants, the camel has two upper incisor teeth, conical and laterally compressed, and somewhat resembling canine teeth, of which in the upper jaw there are two, in addition to twelve molars. Beneath there are six incisors, two canines, and ten molar teeth, the whole forming a dentition admirably suited for the tearing asunder and mastication of the coarse dry shrubs on which the camel usually feeds. It possesses besides many other peculiarities in form and structure specially adapted to its mode of life. Its nostrils are in the form of oblique slits, which can be opened or shut at will, and thus the organ of smell, which in the camel is of extraordinary acuteness, is preserved from contact with the hot acrid sand that, like a "pillar of cloud," frequently sweeps across the desert. The extremities only of the two toes which form the foot are free, and are each terminated by a short and somewhat curved nail, the rest of the toes being connected together by means of a broad elastic pad on which the foot rests, and which buoys the camel up as it moves on the soft and ever-shifting surface. The horny callosities on the breast and limb-joints, on which the camel rests when being loaded, may possibly have resulted from the long ages of servitude to which it has been subjected, but whether they existed in the wild camel or not, traces of them are said to be now found on the new-born young. The hump or humps on the camel's back are mere masses of fat, without any corresponding curve on the vertebral column of the animal, and form a reserve of nourishment to be used when other supplies fail; consequently during lengthened periods of privation, and during the rutting season, when the males almost cease to eat, these masses greatly diminish in size. The camel driver knows well the value of this natural storehouse, and takes care before starting on a lengthened journey to

have the humps of his beasts well distended. In its native deserts, however, the camel is more liable to suffer from lack of water than of food, and accordingly the stomach is so modified as to allow of a certain quantity of water being stored for future use. On the walls of the paunch or first stomach, little pouches with narrow mouths are developed; these are the so called "water cells," the biggest of which in an adult camel measures when dilated about three inches in width and depth, and these serve to strain off a considerable quantity of water from the contents of the paunch, retaining it for future use by means of powerful sphincter muscles. The upper divided lip of the camel is slightly extensile, and is used as a feeler with which to touch and examine its food before turning the same into its mouth. The animal is further characterized externally by its long neck, the dusky color of its fur, the shaggy masses of long woolly hair on certain parts of its body, and the disproportionate shortness of its legs. These, together with the peculiarities already mentioned, combine to make it one of the most ungainly of known animals, and almost justify the recent description given of it by Dr. Russell, the *Times* correspondent, as "an abominably ugly necessary animal." Nevertheless, it is as indispensable where great deserts are to be traversed as is the ship on the ocean highway, and this fact seems to have completely blinded the Arab to its undoubted deficiencies in form, for in his poetry allusion is sometimes made to the motions of the camel as to a recognized standard of elegance.

During the rutting season the male camel becomes exceedingly savage and dangerous, and engages in fierce contests with its fellows. The gravid female carries her young for fully eleven months, and produces only one calf at a time, which she suckles for a year. Eight days after birth the Arabian camel stands three feet high, but it does not reach its full growth till its sixteenth or seventeenth year. It lives from forty to fifty years. The flesh of the young camel resembles veal, and is a favorite food of the Arabs, while camel's milk forms an excellent and highly nutritious beverage, although, according to Layard, it does not furnish butter. The woolly hair, which grows to a great length on the under side of the neck, the upper part of the legs, and on the humps, is shorn every summer, and is woven into a variety of stuffs used by the Arab for clothing himself and his family, and in covering his tent. It was in raiment of camel's hair that John the Baptist appeared as a preacher. The hair imported into this country is chiefly used in the manufacture of small brushes used by painters, while the thick hide is formed into a very durable leather. The dung is used as fuel, and from the incinerated remains of this sal-ammoniac is extracted, which was at one time largely exported from Egypt.

But it is as "the ship of the desert," without which vast tracts of the earth's surface would probably have remained for ever unexplored, that the camel is chiefly valuable. In its fourth year its training as a beast of burden begins, when it is taught to kneel down and to rise at a given signal, and is gradually accustomed to bear increasing loads. These vary in weight from 500 to 1,000 lb, according to the variety of camel employed, for of the Arabian camel there are almost as many breeds as there are of the horse in more temperate regions. When crossing a desert the camels are expected to carry their load 25 miles a day for three days without drink, getting a supply of water, however, on the fourth; but the fleetier varieties will carry their rider and a bag of water 50 miles a day for five days without drinking. When too heavily laden the camel refuses to rise, but on the march it is exceedingly patient under its burden, only yielding beneath it to die; relieved from its load it

not, like other animals, seek the shade, even when that is to be found, but prefers to kneel beside its burden in the broad glare of the sun, seeming to luxuriate in the burning sand.

The docility of the camel has become well-nigh proverbial throughout Europe, but recent travellers who have studied the animal in Arabia and Africa have said much to lessen, if not to extinguish, its reputation in this particular. "If docile means stupid," says Palgrave, who had ample opportunity of observing the camel during his romantic sojourn in Arabia, "well and good; in such a case the camel is the very model of docility. But if the epithet is intended to designate an animal that takes an interest in its rider so far as a beast can, that in some way understands his intentions, or shares them in a subordinate fashion, that obeys from a sort of submissive or half-fellow-feeling with his master, like the horse or elephant, then I say the camel is by no means docile—very much the contrary. He takes no heed of his rider, pays no attention whether he be on his back or not, walks straight on when once set agoing, merely because he is too stupid to turn aside, and then should some tempting thorn or green branch allure him out of the path, continues to walk on in the new direction simply because he is too dull to turn back into the right road. In a word, he is from first to last an undomesticated and savage animal rendered serviceable by stupidity alone, without much skill on his master's part, or any co-operation on his own, save that of an extreme passiveness. Neither attachment nor even habit impress him; never tame, though not wide-awake enough to be exactly wild."

There are two species of camel—the Arabian and the Bactrian. The former or single-humped species (*Camelus dromedarius*) is found in greatest perfection in Arabia, whence it has spread eastwards to India, where it is now extensively used, although the stony nature of much of the ground it has to pass over does not give it in India that superiority over other beasts of burden, which it undoubtedly possesses in desert countries. It seems to have spread westwards with the Koran along the North African shores, and to have been introduced by the Moors into Spain, where, however, it did not succeed in establishing itself. It also accompanied the followers of Mahomet into European Turkey. In Arabia several breeds, each possessing special qualities, are carefully cultivated. The chief of these are the thick-built, heavy-footed, and slow-paced variety, used for carrying heavy loads, and the dromedary—a name often applied to all the members of the single-humped species, but properly belonging only to a thin, comparatively elegant, and fine-haired breed, celebrated for its fleetness, carrying its rider when necessary 100 miles a day. The dromedary, says Palgrave, "is the race-horse of its species," and the difference between it and the heavy variety is exactly the same "as between the race-horse and a hack."

CAMELLIA, the name of a genus of *Ternströmiaceæ*, remarkable for its evergreen laurel-like foliage, and its handsome rose-like flowers, whence the common species, *C. japonica*, is sometimes called the Japan rose. This is an evergreen shrub of remarkably hardy constitution, so that in our climate it flourishes perfectly in a cold green-house. The plant had been cultivated by the Japanese and Chinese long previous to its introduction to our gardens from China in 1739, and, in consequence, numerous double-flowered varieties were at that time known, of which about two dozen sorts were introduced from China, chiefly between 1806 and 1824, some two or three others having been obtained so early as 1792-4. This number of varieties has now been very considerably increased by the production of Euro-

pean seedlings, so that several hundreds are figured in a publication called *Nouvelle Iconographie des Camellias*, specially devoted to their illustration. The plant seeds freely in the climate of Italy and the south of Europe, and thence many first-rate sorts have been obtained.

The name *Camellia* was given to these plants by Linnæus in honor of George Joseph Camellus or Kamel, a Moravian Jesuit, who travelled in Asia, and wrote a history of the plants of the island of Luzon. In Japan, its native country, the *Camellia* attains to the size of a large tree, and it is held in high estimation by the Japanese on account of the extreme beauty of its large, showy, and various-colored flowers, which, however, have this drawback, that they have no scent. It appears to have been cultivated by the Chinese from time immemorial, and all our earlier introductions were obtained from that country.

CAMEO, a term of doubtful origin, applied to engraved work executed in relief, on hard or precious stones, or imitations of such stones in glass called "pastes," or on the shells of molluscous animals. A cameo is thus the converse of an intaglio, which consists of an incized or sunk engraving executed in the same class of materials. The word cameo is generally regarded as being derived from the Arabic *camea*, a charm or amulet; but a number of other derivations have been suggested, among which a highly allegorical origin of the word from the Arabic *camaut*, the camel's hump, implying any object in relief, has been maintained by an eminent authority. Cameo-cutting is an art of much more recent introduction than the sister art of intaglio-engraving. The earliest known traces of any attempt at cutting gem-figures in relief are seen in certain Phœnician and Etruscan scarabei, in which the back of the beetle has been utilized for the faint delineation of another and quite different figure. One of the most ancient known cameos, of which the date can be fixed with certainty, consists of a sardonyx of three layers with portrait heads of Demetrius Soter and his wife Laodice, which must have been engraved between the years 162 and 150 B.C.

The materials which ancient artists used for cutting into cameos were chiefly those siliceous minerals which, under a variety of names, present various strata or bands of two or more distinct colors, and properly the name cameo should be restricted to work executed in relief on such banded stones. The minerals, under different names, are essentially the chalcedonic variety of quartz, and the differences of color they present are due to the presence of variable proportions of iron and other foreign ingredients. These banded stones, when cut parallel to the layers of different colors, and when only two colored bands—white and black, or sometimes white and black and brown—are present, are known as onyxes, but when they have with the onyx bands layers of carnelian or sard, they are termed sardonyxes. The sardonyx, which was the favorite stone of ancient cameo-engravers, and the material in which their masterpieces were cut, was procured from India, and the increased intercourse with the East by the way of Egypt after the death of Alexander the Great had a marked influence on the development of the art. Cameo-cutting attained the zenith of its pristine perfection in Rome during the first two centuries of the Christian era, the chief work being portraits of the reigning families, and allegorical illustrations of their glories. Contemporaneously with the production of the finest works in Oriental precious stones, pastes or imitations in glass were made in incredible numbers to meet the requirements of the classes who could not afford the other necessarily rare and costly luxuries. Both in perfection of material and in artistic merits these imitations were, in the best period, of extraordinary merit. The Barberini or Port-

land vase in the British Museum is a rare example of the skill of both the glass-worker and engraver on glass of ancient times.

The two most famous examples of this art which have come down to the present day are the Great Agate of the Sainte Chapelle in the Bibliothèque Nationale, Paris, and the Augustus Cameo in the Vienna collection. The former was pledged among other valuables in 1244 by Baldwin II. of Constantinople to Saint Louis. It is mentioned in 1344 as "Le Camahieu," having been sent in that year to Rome for the inspection of Pope Clement VI. It is a sardonyx of five layers of irregular shape, like all classical gems, measuring about 13 inches by 11 inches. During the Middle Ages the subject was supposed to be the triumph of Joseph in Egypt; but it is now known to represent on its upper part the apotheosis of Augustus, the centre being occupied with the reception of Germanicus on his return from his great German campaign by the Emperor Tiberius and his mother Livia. The lower division is filled with a group of captives in attitudes expressive of woe and deep dejection. The Vienna gem (*Gemma augustea*), an onyx of two layers measuring 9 inches by 8, is a work of still greater artistic interest. The upper portion is occupied with an allegorical representation of the coronation of Augustus, — the emperor being represented as Jupiter with Livia as the goddess Roma at his side. In the composition Neptune and Cybele, with several members of the family of Augustus, are introduced, and on the exergue or lower portion are Roman soldiers preparing a trophy, barbarian captives and female figures. The history of this inestimable treasure has been traced from the time of the Crusades, and it came into the possession of the Emperor Rudolph II. in the 16th century for the enormous sum of 12,000 gold ducats.

While these and other similar monuments of antiquity, which have come down to us only mellowed and not injured by time, have intrinsically a priceless value as the expression of the most perfect artistic culture and feeling of the age to which they belong, they possess at the same time equally great significance to the student of the history, civilization, morals, and manners of the period. They supply the most authentic means of confirming the inferences to be drawn from classical sources as to beliefs, usages, dress, domestic and public habits, and pursuits of the people with whom they deal, and by means of such gems not only are the prevailing features of an ancient race accurately delineated, but the actual portraits of many of the most prominent personages in the world's history have been faithfully preserved, and can be identified beyond the shadow of a doubt.

In mediæval times antique cameos were held in peculiar veneration on account of the belief, then universal, in their potency as medicinal charms.

CAMERA LUCIDA, an instrument invented by Dr. Wollaston for drawing in perspective.

If a piece of plane glass be fixed at an angle of 45° with the horizon, and if, at some distance beneath, a sheet of paper be laid horizontally on a table, a person looking downwards will see an image of the objects situated before him; and as the glass which reflects the image is also transparent, the paper and pencil can be seen at the same time with the image, so that the outline of the image may be traced on the paper. The image is an *inverted* one. This is the simplest form of the instrument, and may be constructed extemporaneously by fixing on a stand a plane transparent glass, with its surfaces ground parallel, or a piece of Muscovy glass, at an angle of 45° with the horizon. A card with a small hole in it will serve as a sight for keeping the eye steady in one situation whilst the pencil is tracing the image.

This instrument serves for drawing objects of all forms, and consequently also for copying lines already drawn on a plane surface. If it is required that the copy shall be of the same size as the original drawing, the distance of the drawing from the prism should be the same as the distance of the paper from the eye-hole. No lens will be necessary in this case, because the image and the paper being both at the same distance from the eye, coincide without the aid of a glass.

In order to have a reduced copy of a drawing, the drawing is to be placed at a distance from the prism greater than the distance of the paper from the eye-hole. If the distance is twice as great, a copy will be obtained in which the lines are of one-half the size of the lines in the original, and so in proportion for other distances. A lens is necessary that the eye may be enabled to see at two different distances; and, in order that one lens may serve, the distance between the eye-hole and the paper should be variable; to that effect the stand is susceptible of being lengthened or shortened at pleasure.

CAMERA OBSCURA, an optical apparatus consisting of a darkened chamber, at the top of which is placed a box or lantern, containing a convex lens and sloping mirror, or a prism combining the lens and mirror. The rays of light from surrounding objects are received by the lens, and the mirror reflects images of the scenery downwards on a table placed underneath. This ingenious contrivance is said to have been invented by Baptista Porta in the end of the 16th century. For the camera obscura used by photographers see PHOTOGRAPHY.

CAMERARIUS, JOACHIM (1500-1574), whose family name was Liebhard, one of the most learned classical scholars of his time, was born at Bamberg on the 12th April 1500. He studied at Leipsic, Erfurt, and Wittenberg, and in the last-mentioned town he enjoyed the friendship of Melanchthon. For some years he was teacher of history and Greek at the Gymnasium, Nuremberg. In 1530 he was sent as deputy for Nuremberg to the Diet of Augsburg, where he rendered important assistance to Melanchthon. Five years later he was commissioned by Duke Ulrich of Würtemberg to recognize the university of Tübingen; and he subsequently rendered a similar service at Leipsic, where the remainder of his life was chiefly spent.

CAMERARIUS, JOACHIM (1534-1598), a learned physician, son of the preceding, was born at Nuremberg, 6th November 1534.

CAMERINO, formerly the capital of a delegation of the same name in the States of the Church, and now the chief town of a district, in the province of Macerata, in Italy, is situated on a height at the foot of the Apennines, 41 miles W. of Ancona. Population, 11,880.

CAMERON, JOHN (1579-1623), a learned theologian, was born at Glasgow about 1579, and received his early education in his native city. After having taught Greek in the university for twelve months, he removed to Bordeaux, where he was soon appointed a regent in the College of Bergerac. He did not remain long at Bordeaux, but accepted the offer of a chair of philosophy at Sedan, where he passed two years. He then returned to Bordeaux, and in the beginning of 1604 he was nominated one of the students of divinity who were maintained at the expense of the church, and who for the period of four years were at liberty to prosecute their studies in any Protestant seminary. During this period he acted as tutor to the two sons of Calignon, chancellor of Navarre. They spent one year at Paris, and two at Geneva, whence they removed to Heidelberg, where they remained nearly twelve months.

In this university, on the 4th of April 1608, he gave a public proof of his ability by maintaining a series of theses, *De triplici Dei cum Homine Pædere*, which were printed among his works. The same year he was recalled to Bordeaux, where he was appointed the colleague of Dr. Primrose; and when Gomarus was removed to Leyden, Cameron, in 1618, was appointed professor of divinity at Saumur, the principal seminary of the French Protestants.

In 1620 the progress of the civil troubles in France obliged Cameron to seek refuge for himself and family in England. For a short time he read private lectures on divinity in London; and in 1622 the king appointed him principal of the university of Glasgow in the room of Robert Boyd, who had been removed from his office in consequence of his adherence to Presbyterianism. His successor appears to have been more favorably inclined to Episcopacy,—a circumstance that may have tended to diminish the cordiality of his reception in his native city. Here he also taught divinity with great reputation, but he resigned his office in less than a year.

He returned to France, and fixed his residence at Saumur; and after an interval of a year he was appointed professor of divinity at Montauban. The country was still torn by civil and religious dissensions; and as Cameron maintained the doctrine of passive obedience, he excited the indignation of the more strenuous adherents of his own party. He withdrew to the neighboring town of Moissac; but he soon returned to Montauban, and a few days afterward he died at the age of about forty-six. Cameron left by his first wife several children, whose maintenance was undertaken by the Protestant churches in France. All his works were published after his death.

His name has furnished a designation to a party of Calvinists in France, who asserted that the will of man is only determined by the practical judgment of the mind; that the cause of men's doing good or evil proceeds from the knowledge which God infuses into them; and that God does not move the will physically, but only morally, by virtue of its dependence on the judgment of the mind.

CAMERON, RICHARD, the founder of the Cameronians, was born at Falkland, in the county of Fife. The date of his birth is not known. His father, who was a shopkeeper in that town, gave him such an education as the village school afforded; and his success was so great that, while still a youth he was appointed schoolmaster. In this situation he had opportunities of becoming acquainted with some of the more enthusiastic field-preachers, who at this time wandered through the country disseminating their doctrines. Persuaded by them he resigned his situation, and shortly after entered the family of Sir Walter Scott of Harden as chaplain and tutor. He did not remain there long, however, for, refusing to acknowledge the Indulgence, he joined the ranks of the nonconforming ministers, and incited the inhabitants of the southern counties of Scotland to protest openly against the new edict. So formidable was the agitation that the Government thought fit to interfere, and pronounced illegal all armed assemblages for religious purposes. Cameron was obliged to take refuge in Holland, where he resided for some time; but in the spring of 1680 he returned to Scotland, and once more made himself formidable and obnoxious to the Government. Shortly after the defeat of the Covenanters at Bothwell Bridge in that year, Cameron was slain in a skirmish at the Aird's Moss, fighting bravely at the head of the few troops which he had been able to collect, and which formed the nucleus of the renowned regiment in the British army afterwards known by his name.

CAMEROONS, or perhaps preferably CAMAROONS,

is the greatest mountain-mass on the western coast of Africa. It is situated at the angle of the Bight of Biafra, directly opposite the island of Fernando Po, with which it has evidently an intimate geological connection. Its European name is said to be derived from the Portuguese Camarões (shrimps or prawns), and to have been bestowed by the early discoverers on the neighboring coast from the abundance of its crustacea. The native designation of the highest peak is Mongemá-Lobá, or the Mountain of the Sky, and the whole upper region is usually called Mongo-mo-Ndemi, or the Mountain of Greatness. The area of the Cameroons proper is calculated at about 380 square miles; but offshoots and underfalls seem to stretch both north and south for considerable distances.

CAMILLUS AND CAMILLA, in Roman Antiquity, the title applied to the boys and girls who were occupied in the ceremonies of sacrifice, whether temporarily or as a preparation for their entering the priesthood. In the latter case it was necessary that they should be the children of parents still alive (*patrimi et matrimi*) and freeborn. The name Camillus has been identified with the Cadmilus or Casmilus of the Samothracian mysteries.

CAMILLUS, MARCUS FURIUS, one of the most illustrious heroes of the Roman republic. He triumphed four times, was five times dictator, and was honored with the appellation of Second Founder of Rome. When accused of having unfairly distributed the spoil taken at Veii, he anticipated judgment, and went voluntarily into exile at Ardea. But during his exile, instead of rejoicing at the devastation of Rome by the Gauls, he exerted himself to repel the enemy, and yet kept with the utmost strictness the sacred law of Rome, in refusing to accept the command, which was offered him by several private persons. The Romans, when besieged in the Capitol by the Gauls, created him dictator; and in this capacity he acted with so much bravery and conduct, that he entirely drove the enemy out of the territories of the commonwealth. He died of the plague in the eighty-first year of his age, 365 B.C. For a critical estimate of the amount of historic truth that lies under the somewhat legendary history of Camillus see ROMAN HISTORY.

CAMISARDS was the name given to the peasantry of the Cévennes who, from 1702 to 1705 and for some years afterwards, carried on an organized military resistance to the *dragonnades*, or conversion by torture, death, and confiscation of property, by which in the Huguenot districts of France, the revocation of the Edict of Nantes was attempted to be enforced. Court de Gébelin derives the word from *camisade*, a night attack (*Hist. de troubles des Cévennes*, 3 vols. 1760). Louvreuil, in his *Le Fanatisme Renouvelé*, 1704, suggests its connection with the *camise*, or linen shirt, at one time worn by the insurgents as a uniform, and with *camis*, a road-runner. The Camisards were also called Barbets (or water-dogs, a term also applied to the Vaudois), Vagabonds, Assemblers (*assemblée* was the name given to the meeting or conventicle of Huguenots), Fanatics, and the Children of God. They belonged to that romance-speaking people of Gothic descent who took part in the earliest movements towards religious reform. It was in Languedoc that the Peace of God and the Truce of God were formed in the 11th century against the miseries of private war. There were preserved the forms of municipal freedom which nearly all Europe had lost; and there commerce flourished without spoiling the thrift, the patience, the simplicity of the national character. Not even the voluptuous court of Arles, with its *trouvères*, its courts of love, and its extravagant applications of the rules of chivalry, could

corrupt the free and honest intelligence of these southern communities. Although the rage of the Crusaders and the cold hate of the Dominicans were successful in blasting the commercial development of the district, they could not wholly eradicate those ideas which, whether called Paulician, Catharist, Bulgarian, Hussite, or Protestant, really represent religious sincerity and mental freedom. Calvin was warmly welcomed when he preached at Nîmes, Montpellier became the chief centre for the instruction of the Huguenot youth. But it was in the great triangular plateau of mountain called the Cévennes that, among the small farmers, the cloth and silk weavers, and vine dressers, Protestantism was most intense and universal. These people were and still are very poor, but they are intelligent and pious, and they add to the deep fervor of the Provençal character a gravity which is probably the result of their recorded history. From the lists of Huguenots sent from Languedoc to the galleys (1684 to 1762), we gather that the common type of *physique* is fine shape, brown hair, and oval face.

To understand the war of these Camisards requires a glance at the preceding history of France. The system of toleration which was established under the Edict of Nantes, 13th April 1598, and the Edict of Grace (Nîmes), July 1629, was essentially a political compromise, and not a recognition of the principle of religious equality. The right of having a private chapel was given to all *seigneurs de fief haut justicier*, but in the case of a *seigneur sans haute justice* only thirty persons might attend the service. New public churches were to be authorized at a certain rate in certain places. On the other hand, Calvinists were admitted to all public posts and to all professions; they could publish books in towns where they had churches. The Chamber of the Edict was formed in the parliament of Paris for the impartial judgment of cases brought by Huguenots; and the "mi-partie," half-Catholic half-Protestant constitution, was adopted in the town-consulates and the local parliaments of the south. After the short-lived struggle between Louis XIII. and the Duc de Rohan, the Huguenots settled down into contented industry; the army and navy of France were led by two Huguenots, Turenne and Duquesne, and Cardinal Bentivoglio wrote to Pope Paul IV. that he no longer found in France "that insane fervor of conscience so deeply rooted amongst the Huguenots." But the court in which Mme. de Maintenon had succeeded to Mme. de Montespan, where Louvois and the Jesuit Père la Chaise were as supreme as Bossuet and Fléchier in the church, could not long be satisfied with tolerated heresy, which they chose to consider as veiled rebellion.

On the death of Mazarin a commissioner had perambulated the kingdom to inquire into the titles, or rather to suppress as many as possible, of the Huguenot churches, schools, and cemeteries. The extirpation of heresy had, in fact, been provided for by a clause in the marriage-contract between Louis and Maria Theresa (1660), and in spite of the protection of Colbert, a policy was begun of destroying piece-meal the privileges of the dissenters. The chancellor Le Tellier, by a series of arbitrary council edicts, shut against them the public offices and the trade corporations, forbade them to marry with Catholics, and encouraged, almost enforced, the conversion of children who had reached the age of seven. The wholesale bribes of Pélisson, the destruction of churches by Foucault in Montauban, Béarn, and Poitiers, the billeting of soldiers on the unconverted in Languedoc by the intendant Bâville, led up to the Edict of Revocation (18th October 1685). This edict directed all the churches to be destroyed, forbade religious meetings under pain of imprisonment and

confiscation of goods, ordered all ministers or pastors (who would not change their faith) to be banished within fifteen days, and to stop preaching at once under pain of the galleys, promised several exemptions from taxes and increased salaries to converted ministers, suppressed all Huguenot schools, directed all children to be baptized and brought up in the Catholic faith, prohibited all Huguenots, except ministers, from going abroad, and declared the property of those who had already gone to be forfeited unless they returned within four months. Such was the formal scheme. In carrying it into effect, Huguenot Bibles, Testaments, Psalters, and books of religious instruction were burned, and Huguenots were forbidden to hire themselves as artisans or as domestic servants. Torture, hanging, insults worse than death to women, the galleys for life, imprisonment for life in the Tour de la Constance, near Aiguesmortes, were the ordinary occurrences of the next sixty years. Many escaped to Geneva, Lausanne, Amsterdam and London. It is calculated that 600,000 French Protestants left their country in the twenty years following the revocation, and 400,000 in the twenty years preceding it. Many suffered a shameful conversion, but in the Cévennes the inhabitants were too poor to escape, and all over Languedoc began the secret meetings of the Church of the Desert. At last Louvois proposed that this rebellious district should be turned into an actual desert. The intendant Bâville and the Duc de Noailles raised an army 40,000 strong, and erected forts at Nîmes, St. Hippolyte, Alais, and Anduze. The peace of Ryswick (1697) facilitated these operations. The religious hysteria which now descended on the Cévennes has been traced to Du Serre, an old Calvinist of Dieu-le-fit, who, in reading Jurieu's well-known book on the *Fulfilment of the Prophecies*, became suddenly inspired to preach and pray, and who about 1689 communicated his enthusiasm to the shepherdess La Belle Isabeau, and 500 or 600 other so-called prophets.

In 1700 this sacred fire again broke out in the person of a travelling dressmaker in Ardèche, and spread from the summits of the Lozère to the sea (Peyrat, *Histoire des Pasteurs du Désert*, i. 261). A woman (Isabel Vincent) was again the most exalted of the prophets. The Abbé du Chaila, a veteran Catholic missionary from Siam, had been appointed inspector of missions in the Cévennes. There he introduced the "squeezers" (which resembled the Scotch "boot"), and his systematic and refined cruelty at last broke the patience of his victims. His murder, on 23d July 1702, at Pont de Mont Vert, was the first blow in the war. It was planned by Esprit Séguier, the "Danton of the Cévennes," who at once began to carry out his idea of a general massacre of the Catholic priests. He soon fell, and was succeeded by Laporte, an old soldier, who, as his troop increased, assumed the title of the Colonel of the Children of God, and named his camp the "Camp of the Eternal." He used to lead his followers to the fight, singing Clement Marot's grand version of the 68th Psalm, "Que Dieu se montre seulement," to the music of Goudimal. Besides La Porte, the forest-ranger Castanet, the wool-carders Conderc and Mazel, the soldiers Catinat, Joany, and Ravenel were selected as captains, — all men whom the *théomanie* or prophetic malady had visited. But the most important figures are those of Roland, who afterwards issued the following extraordinary despatch to the inhabitants of St. André:—"Nous, comte et seigneur Roland, généralissime des Protestants de France, nous ordonnons que vous ayez à congédier dans trois jours tous les prêtres et missionnaires qui sont chez vous, sous peine d'être brûlés tout vifs, vous et eux." (Court, i. p. 219); and Jean Cavalier, the baker's boy, who, at the age of seventeen, commanded

the southern army of the Camisards, and who, after defeating successively Count de Broglie and three French marshals, Montrevel, Berwick, and Villars, made an honorable peace.

Cavalier for nearly three years continued to direct the war. Regular taxes were raised, arsenals were formed in the great limestone caves of the district, the Catholic churches and their decorations were burned, and the clergy driven away. Occasionally routed in regular engagements, the Camisards, through their desperate valor, and the rapidity of their movements in a country without good roads, were constantly successful in skirmishes, night attacks, and ambushades. A force of 60,000 was now in the field against them; among others, the Irish Brigade which had just returned from the persecutions of the Vaudois. Montrevel adopted a policy of extermination, and 466 villages were burned in the Upper Cévennes alone, the population being for the most part put to the sword. The Pope, Clement XI., assisted in this glorious work by issuing a Bull against the "execrable race of the ancient Albigenses," and promising remission of sins to the holy militia which was now formed among the Catholic population, and was called the Florentines, Cadets of the Cross, or White Camisards. Villars, the victor of Hochstadt and Friedlingen, saw that conciliation was necessary; he took advantage of the feeling of horror with which the quiet Protestants of Nîmes and other towns now regarded the war, and published an amnesty. In May 1704 a formal meeting between Cavalier and Villars took place at Nîmes. The result of the interview was that a document entitled *Très humble requêt des réformés du Languedoc au Roi* was despatched to the court. The three leading requests for liberty of conscience and the right of assembly outside walled towns, for the liberation of those sentenced to prison or the galleys under the revocation, and for the restitution of the emigrants of their property and civil rights, were all granted,—the first on condition of no churches being built, and the third on condition of an oath of allegiance being taken. The greater part of the Camisard army under Roland, Ravenel, and Joany would not accept the terms which Cavalier had arranged. They insisted that the Edict of Nantes must be restored,—"*point de paix, que nous n'ayons nos temples.*" They continued the war till January 1705, by which time all their leaders were either killed or dispersed.

In 1709 Mazel and Claris, with the aid of two preaching women, Marie Desubas and Elizabeth Catalon, made a serious effort to rekindle revolt in the Vivarais. In 1711 all opposition and all signs of the Reformed religion had disappeared. On the 8th March 1715, by medals and a proclamation, Louis XIV. announced the entire extinction of heresy. Fourteen years afterwards, in spite of the strictest surveillance, aided by military occupation whenever the exigencies of foreign war permitted, the heroic missionary Antoine Court had organized 120 churches in Languedoc, which were attended by 200,000 Protestants, and governed secretly by the old discipline of "pasteur, anciens, consistoire, synode;" the Society of Help for the Afflicted Faithful (to which George I. subscribed 500 guineas a year) had established their training college at Lausanne; and during the next thirty years Paul Rabaut, minister at Nîmes, fostered and developed this religion, the child of intolerance. Voltaire's intervention in the affair at Calas stopped further religious persecution of an extreme kind, but it was not till 1775 that the last galley slaves from Languedoc were liberated, and not till 1789 that, on the motion of Rabaut St. Etienne, the son of Paul Rabaut, the National Assembly repealed the penal laws against Protestants.

CAMOENS (or, according to the Portuguese spelling, CAMÕES), LUIZ DE (1524-1579), the son of Simão Vas De Camoens and Ana de Sá e Miranda, was descended in the female line from the Gamas of Algarve, with which family Vasco de Gama claimed kinship; on the male side also the Camoens were of gentle birth and high social position. Lisbon, Coimbra, Alemquer, and Santarem have claimed to be the cradle of this "prince of poets of his time;" the balance of evidence, however, is now generally considered to be in favor of Lisbon. The evidence of Faria e Sousa, extracted in 1643, from the registers of the "India House at Lisbon," proves Camoens to have been twenty-five years of age in 1550; and 1524 is now generally accepted as approximately the year of his birth.

Alarmed by the shock of an earthquake as early as 1526, the court removed to Coimbra, where it remained until the pestilence, which devastated Lisbon and the border lands of the Tagus, had moderated; the nobles and "fidalguia" followed the king and court. Simão Vaz de Camoens having house and possessions at Coimbra, would naturally follow the court there with his family; the more so as his brother Bento had, prior to 1527, taken "the habit in the monastery of Santa Cruz," where he was often visited by the king. Evidently a man of culture, he was chosen, on the reformation of the university in 1529, "being then prior of his order," the first chancellor. The popularity of the training at the newly-reformed university drew within its walls most of the sons of the nobility and "fidalguia." Here Camoens was entered as one of "the honorable poor students" in 1537, remaining there until he had completed his eighteenth year.

During his studentship, and possibly at a vacation revel, or when some degree was conferred, the students acted his *Amphitriões* in imitation of Plautus.

With reference to the precise period when Camoens removed entirely from his *alma mater* and became again resident in Lisbon, some speculations have been hazarded by his biographers. The one carrying the most weight is cited by the Visconde de Juromenha, who founds it upon the statement made by the poet in his first letter from India: "Because, when I reflect that without sin, which would sentence me to thirteen days of purgatory, I have passed thirteen thousand caused by evil tongues." Upon this Juromenha observes: "These thirteen thousand days are equal to eight years and eight days, and deducting the two years Camoens passed in Ceuta, and the one year of banishment on the upper Tagus, this leaves 1542 as the year of his departure from Coimbra." Thus we find Camoens quitting college to return to the court at Lisbon in his eighteenth year. A French biographer has assumed, with some force, that "Corte" simply means Lisbon, and not the court; for as Camoens was not of the titular nobility, he would not be received at court. Contemporary evidence, on the other hand, rather favors the assumption that being of the "fidalguia," gentle born, and well cultured, he would be chosen as companion by many of the young nobles who were his fellow-students at Coimbra.

Gentleness of birth, classical attainments of no mean order, a cultivated intellect, and poetic genius, united to a pleasing personal appearance and witty manner, must have been good passports to the court of John III., in which resided at that time the Infante Dom Luiz, a man of considerable attainments and a fair poet; also the Infanta Donna Maria, patroness of the Belles Lettres, surrounded by a bevy of fair damsels who could compose song, dirge, epigram, and roundelay, or jest with the quick wit of a Beatrice, and who, like her, knew many "merry tales" by heart. Statesmen, such as the Conde de Sortelha and the Conde de Vimioso, courtly poets,

and fellow-students of Camoens at Coimbra, both in the full blaze of court favor, would gladly welcome to Lisbon so polished a youth as Camoens must at that time have been.

Here, no doubt, Camoens formed acquaintanceships if not friendships, and became quickly initiated into the mysteries of court life and manners. Precocious and born a poet, his facility in every style of versification, a mind stored with romances of chivalry as well as popular fiction, and the poetic lore then available in his own, the Spanish, Italian, and classical idioms, would, added to his youth and sprightly manner, render him popular with the gentler, and unpopular with the sterner sex. Abandoning in some degree the antiquated forms of composition in vogue, he introduced eclogues, songs and sonnets, full of tenderness and beauty, after the manner of the Italian school. Montemayor and Sá de Miranda, both Portuguese, residing in Italy, had already adopted and naturalized to some extent the Italian form of pastoral poetry.

Here we must speak of Camoens's romantic passion for a certain high-born lady of the court. "The sweet unwitting cause" of so much detriment to his court advancement, and, if we are to credit his muse, of anguish to his heart, was a certain Donna Caterini de Ataide in attendance upon the queen of John III. The tradition is that, on a certain Good Friday, Camoens for the first time encountered the lady's eyes at her devotions in the Church of the Chagas, Lisbon. That the wound proved deep and permanent there is abundant evidence in his *Rimas*.

The lady's father, Dom Antonio de Lima, held the office of chamberlain in the royal household, a certain Pero de Andrade de Caminha serving in a similar capacity the Infante Dom Duarte. Caminha was a poet of fair ability, and was probably jealous of the success of Camoens; in addition to which tradition asserts that Caminha himself, favored by her father, aspired to the hand, if not the heart, of the Donna Caterina. We may infer that the lady was not ignorant of the effect her eyes wrought upon the author of the *Lusiad*; at any rate Caminha was jealous, and revenged himself in weak splenetic rather than satirical verse, while the lady's father employed his interest to mar the poet's prospects.

The precise cause which led to Camoens's banishment from Lisbon is not clear. The principal reason, no doubt, was his passion for the golden-tressed Caterina, but there may have been in addition to this some unintentional contempt of the rigid court etiquette which hedged the royalty of that day; for it was the custom that lyric offerings intended for the ladies of the queen's court should first be submitted to the chamberlain, and then by him transferred to the chief lady in waiting, who handed the effusion to the queen, — she, in her turn, after perusal, passing the "burning lines of passion" into the hands of the damsel to whom they were addressed. Camoens, doubtless would essay some safer and more secret mode of conveying his offerings to the lovely Caterina. The dislike of De Lima, and the jealousy of Caminha, aided by the indiscretion and free-lance life of Camoens, may have led to this mark of the royal severity. Adding the year of his banishment to the two years he was absent with the army of Africa, at Ceuta, where, in a naval engagement with the Moors, a chance splinter destroyed the sight of his right eye, we find him again in Lisbon in 1550.

During the three years which intervened between Camoens's return from Ceuta and his embarkation for India in 1553, he seems to have led a careless and discreditable kind of life, consorting with the least reputable court gallants, and a certain dissolute ex-Franciscan

friar, who had abandoned the cowl to adopt the rôle of a low comedian. Since he inherited the traditions of "fidalgua,"—candid, brave, impetuous, and crossed in love,—much of the free and careless life credited by tradition at this period to Camoens is reasonably accounted for, if it may not be condoned. At this period occurred the fracas which led to his imprisonment and subsequent embarkation for India. On the occasion of a grand procession at the festival of Corpus Christi, one of the king's equerries appears to have had a dispute with two masquerading companions of Camoens. The latter, unhappily intervening to defend one of these friends hardly pressed, wounded the equerry in the neck, his two friends escaping in the confusion. For this Camoens lay some time in prison, and was only pardoned upon the understanding that he should embark forthwith for India.

Camoens, in his first letter from India, alludes to his departure from his native city; and as he sailed out of the "golden-sanded Tagus" in the twilight, exclaimed in the bitterness of his heart, using the words of Scipio Africanus,— "Ungrateful country, thou shalt not possess my bones!"

The ship in which he sailed, the "San Beneto," parted company with her consorts during a storm, and reached her destination in the same year, while her missing consorts did not anchor at Goa until the following spring. On landing at Goa, Camoens found the Viceroy Noronha preparing an expedition to act against the king of Pimenta, who had invaded the territories of the allies of Portugal. With this expedition sailed Camoens; and "after chastising the enemy," he says, "with little trouble, we destroyed the people trained to the use of the curved bow, punishing them with death and fire." He returned to Goa early in the following year, 1554.

The friendly terms upon which Camoens remained with the governor, and probably his disgust at the vice and venality rampant around him, induced him to join the expedition organized with a view to check the depredations of the Moorish rovers on the coast of Arabia. The commander, Menezes, received instructions to cruise on that coast where he expected to intercept the galleys sailing from Bassorah. The fleet cleared from Goa early in the year 1555; and, after seeking the Moorish galleys in vain, wintered at Ormuz. Returning in the following spring to Goa, Camoens, in *canção 10*, describes his unpleasant impressions of this voyage: "Here fate's most cruel chances led me; here in this lonely, sterile, sun-scorched land did Fortune will that part of my brief life be passed, and thus in fragments scattered lie throughout the world." Some of Camoen's biographers allude to the governor Barreto as one of his relentless persecutors. Juromenha, however, demurs to this, alleging that two intimate friends of Camoens then at Goa, in the most frank and decided language, laud Barreto as "a liberal obliging comrade, and one ever ready to overlook offences received." That Camoens was unpopular with the venal many, his expression "This land is the mother of great villains and the step-mother of honorable men" leaves little doubt. He came to uphold the honor of Portugal, and not to intrigue, brawl, and barter his soul for gold. His satirical exposure of the abuses so rife then in the Eastern dominions of Portugal will readily account for his numerous enemies, official and lay. Festivals, banquets, and dramatic representations inaugurated the governorship of Barreto. Camoens's pen was not idle. He wrote a comedy for the occasion, entitled *Filodemo*. Correia, who describes himself as "companion in the state of India, and a great friend of Camoens," happily secured either the original MS. or a copy, which is, or was, in the national library at Lisbon. It is entitled,

A Comedy made by Luis de Camoens, and represented in India during the governorship of Barreto, and in which the following characters figure, &c.

Camoens's unpropitious star still dominated his fate. The vices rampant in Goa, the drunkenness, dicing, brawling, and cowardice, were notorious; and during these festivities, which lasted some weeks, were more pronounced than ever.

A certain satire, said to be from the pen of Camoens, passed from hand to hand, entitled *A Jest which was made upon some men who did not think ill of wine, feigning that in Goa, at the feasts which were made on the governor's succession, these gallants were to sport with canes bearing devices on their banners, and verses conforming to their designs and inclinations*. It is written chiefly in prose, having verses introduced. No names of the "gallants" appear. After introducing a few of these revellers, the author concludes by stating "that several other illustrious personages desired to be admitted to the feasts and sports, and to have an account of their qualifications chronicled;" but, he observes, "the writing would be infinite, because all the men in India are so distinguished, and therefore let these suffice as examples." This jest, intended to satirize the corruption and immorality of the daily life of the Portuguese in India, caused intense amusement to those who did not recognize their own portraits on the canvass; while, on the other hand, those who did, or imagined they did, were furious,—so much so, that "the innocent author remained ready to hang himself."

The tradition is that this *Jest* was appended to Camoens's second letter from India, and that the author desired its source should remain unknown; "because I do not wish that of my little so many should eat." Be that as it may, Camoens was banished from Goa, and this *Jest* is said to have been the cause. Some of those ridiculed were powerful, malignant, and treacherous; and it is surmised that Barreto was of the number, but it is difficult to imagine that if Barreto intended punishment he should have made of this banishment a stepping-stone to a lucrative appointment, which must have been one of considerable importance, embracing as it did the custody of the property of absentees, and of those Portuguese who had died in India. In a letter from Francisco de Souza to John III. the importance of this office is recognized, grave complaints of embezzlement and misappropriation of the property of deceased merchants and others having reached Lisbon, so that, "early in 1556, a commission was despatched from the mother country to take charge of the effects of deceased subjects," and, in 1557, "full instructions as to the management of this state department followed." Barreto, with a laudable desire to abate these scandals, may well have appointed a bold energetic man, upon whose integrity he could rely, and Camoens was selected.

During the absence of Camoens from Goa his friend Luiz Franco Correia collected the verses he had scattered amongst his friends, shrewdly observing, "that they who knew not the poetic art failed to estimate its value."

Apart from the vices and intrigues of Goa, and in the quietude of the Grotto still shown at Macao as the spot where much of the *Lusiad* was penned, we may imagine halcyon days for the persecuted poet. Here Antorio, the Javanese slave, is first introduced to history,—he who tended Camoens so affectionately and with such solicitude through those latter years of misery and neglect, which were the lot of this unhappy "prince of poets of his time." It is surmised that the first six cantos of the *Lusiad* were composed during Camoens's stay at Macao; for in the seventh, allusion is made to the shipwreck he suffered on his return to Goa.

During his absence slanderous tongues were not silent, and we hear of his return to Goa by order of the governor, to make answer to charges brought against him in his capacity as commissary. Wrecked near the mouth of the River Mekong, Camoens and his faithful Javanese escaped only with their lives. Camoens, rescuing nothing but the manuscript of his epic, at length landed at Goa in the last days of Barreto's governorship, and was cast into prison. Here he received the only news which could aggravate his pain—the sad tidings of the death of Donna Caterina de Ataíde, the Natércia of his impassioned youth. We can estimate the depth and tenderness of his grief touchingly expressed in many of the *Rimas*.

The arrival in the autumn of the following year of Dom Constantinho de Bragança as governor to replace Barreto led to the liberation of Camoens, the charges against him having been proved to be unfounded. Under the protection of Dom Constantinho the poet enjoyed some respite from his persecutors. It was during this period of "cultured calm" that he invited several "versifying friends" to a banquet, where each, on uncovering his plate, discovered, in place of the first course, an appropriate stanza. The surprise gave occasion to considerable mirth and amusement. Three years later Dom Constantinho was replaced by the Conde de Redondo, an early friend and companion of the poet's. Towards the close of 1562 Camoens suffered a new reverse. Miguel Rodriguez Coutinho, a rich braggart, nick-named Fios Seccos (dry threads), detained him in custody for a trifling debt. On this occasion Camoens sent a request to the Conde to release him, in epigrammatic verse, which well revenges Coutinho's meanness, commencing—"What devil so completely damned but fears the edge of Fios Seccos' sword." Camoens was released, but does not appear to have accompanied the viceroy and his splendid retinue to Zamorin. Being desirous to return to his native land, a certain Captain Barreto, nephew of the old governor of Goa, charmed with the society of the poet, agreed to carry him to Sofala; once there he hoped to detain him, and claimed a small sum he was unable to discharge. Here the expedition under Noronha, ex-governor of Goa, found him; and of Camoens's condition Diogo de Couto wrote: "Here we encountered that 'prince of poets of his time,' my fellow-sailor and friend, Luiz de Camoens, so poor that he lived upon his acquaintance, who found him necessary clothing and gladly gave him to eat. During that winter he prepared his *Lusiad* for the press, and wrote much in a book he called the *Parnaso of Luiz de Camoens*."

The fleet, including the "Santa Clara," with Camoens on board, sailed from Sofala in November 1569, and on the 7th April 1570 the good ship cast anchor in the broad waters of the "golden-sanded Tagus."

After seventeen years of weary exile we may imagine the thrill of joy that warmed the heart of Camoens at the first sight of the headland which bares its base to the wash of the Atlantic, and marks the entrance to the Tagus. "From the round-top of the loftiest mast a sailor shouts, 'The land, the land!' This is my native land so fondly loved, which heaven grant, all perils past, my task accomplished, these eyes behold once more before their light be dimmed for ever." While others from the far Indies brought rich merchandise and gold, he who had suffered banishments and imprisonments, had encountered tempests and shipwreck, came freighted only with a single manuscript, on the pages of which were traced in immortal verse the glorious historic deeds of the Portuguese nation, and the touching episode of Ignez de Castro. Here Fortune still continued to persecute Camoens. He and his companions were not

permitted to land, Lisbon having recently suffered from the effects of a pestilence which had destroyed 50,000 souls.

Late in the month of April, the great plague having abated, a procession of our Lady of Health was decreed; and it is supposed that Camoens had already landed and embraced his mother, then "very old and very poor." The *Lusiad*, being now completed and ready for the press, after much delay and many impediments, was, through the influence of Dom Manoel, ambassador to Castile, presented in manuscript to the young king in the following year, 1571; the royal permission to print the work was accorded, the Alvará bearing date the 23d September of that year. Later the "censura" of the holy office was obtained, bearing date 12th March 1572. It carries the signature of Father Ferreira, a man of singular ability and evidently liberal views.

At length the epic, dreamed of at Coimbra, commenced in banishment, continued at Ceuta, resumed at Goa and Macao, revised at Mozambique and Sofala, and perfected in a humble room in the Rua de Santa Ana, Lisbon, was issued from the press of Antonio Gôçalves.

The first edition of the *Lusiad* bears date Lisbon, 1572. Its success was immense, and the despair and malice of the mediocre poets of the court intense. A second edition was issued from the press of Gôçolvez in the same year.

Isolated amid his literary strife, Camoens lived retired, and was very poor. He lived in the knowledge of many, and in the companionship of few, inhabiting an apartment in a house adjoining the convent Santa Ana, at the bottom of a small street which led to the college of the Jesuits, where the sole consolation of his latter years was his intimacy with some of the fathers. By the death of the Princess Donna Maria, who expired in 1578, Camoens lost the last of his protectors, and was reduced to extreme poverty; then came the heaviest blow of all, the death of his faithful Javanese Antonio.

Early in the year 1578, after the grand ceremony of the Benediction of the Standards, Dom Sebastião, the boy king, departed on his ill-starred expedition to Africa,—Bernardes, a court poet and courtier, being selected in preference to Camoens to accompany the expedition and sing its triumphs. In August occurred the fatal route of Alcazar-quivir, and the death of the young king, after which, according to the testimony of Bernardo Rodriguez, "Camoens went as one dreaming."

Three months prior to the poet's death, Benito Caldera's Castilian version of the *Lusiad* was printed at Alcalá de Henares, and we may reasonably infer that Camoens saw a copy.

The disaster of Alcazar-quivir shook Portuguese nationality to its base. In the last letter Camoens penned he alludes to this event. "I have so loved my country that not only do I deem myself happy to die in her bosom but happy to die with her."

The sad sickness unto death came at last, on the 10th of June, 1580. In a small, cheerless room of a shabby house in the Rua de Santa Ana (No. 52 or 54) Luiz de Camoens died, and he was buried in the neighboring convent of Santa Ana.

Camoens was spared the pain and humiliation of seeing a Castilian king upon the throne of Portugal. It is, however, related of Philip II. that, soon after his occupation of Lisbon, he inquired for Camoens, and finding him already dead, gave (as documentary evidence shows) instructions that a pension be granted to the poet's mother, still "very old and very poor." She survived the poet some years.

Amid many tributes to Camoens' memory, those of

Manoel de Sousa, Diogo Bernardes, Tasso, and Lope-de-Vega are well known. The last alludes to him as "the divine Camoens," and adds, "Strange fortune that to so much wit and learning gave a life of poverty and a rich sepulchre."

A Spanish biographer of Cervantes has shown "that the most remarkable coincidence of fortune may be traced in the events which marked the lives of Camoens and the author of *Don Quixote*."

CAMP, ROMAN. While the Greeks, depending more upon the advantages of situation, adapted the form of their encampment to the nature of the ground selected, the Romans laid out theirs according to a fixed and definite plan, modified only by the numbers for whom accommodation had to be provided. Its form and arrangement in the best days of the republic are minutely and clearly described by Polybius, the companion in many wars of the younger Scipio.

CAMPAGNA, a town of Italy, in the province of Principato Citeriore, 19 miles east of Salerno.

CAMPAGNA DI ROMA, is, in the wider application of the word, an extensive plain of central Italy, almost coinciding with the ancient Latium, and, in a more restricted signification, that portion of the larger area which lies immediately round the city of Rome between the Tiber and the Anio. In ancient times it seems to have been a well peopled region, and was the seat of numerous cities; but in the 3d and 4th centuries B.C. the Roman aristocracy turned most of the district into huge estates, and thus led to the disappearance of the agricultural population. In the earlier period of the empire its condition grew worse and worse, and many parts of the plain became covered with pestilential marshes. The emperors Claudius, Nerva and Trajan turned their attention to the amelioration of the district, and under their example and exhortation the Roman aristocracy erected numerous villas within its boundaries, and used them at least for summer residence. With the ruin of the empire and the inroad of the barbarian hordes the desolation of the Campagna was complete; but, again, in the Middle Ages, it became dotted over with the baronial castles of the rival families of Rome—the Orsini, the Colonnas, the Savelli, the Conti, and the Caetani—who ruthlessly destroyed the remains of earlier edifices to obtain materials for their own. Several of the popes, as Boniface IX., Sixtus IV., and Julius III., made unsuccessful attempts to improve the sanitary condition of the Campagna; and equally fruitless in more recent times—as far, at least, as the general purpose is concerned—have been the efforts of Popes Pius VI. and VII., and of General Miollis, the French governor of Rome. The most healthy portions of the territory are in the north and east, embracing the slopes of the Apennines which are watered by the Teverone and Saccho; and the most pestilential is the stretch between the Lepini Hills and the sea. The Pontine marshes, included in the latter division, were drained, according to the plan of Bolognini, by Pius VI.; but though they have been restored to cultivation, their insalubrity is still notorious.

CAMPAN, JEAN LOUISE HENRIETTE (1752–1822), *née* GENEST, was born at Paris in 1752. Carefully educated, and surrounded by the most cultivated society, at the age of fifteen she had gained so high a reputation for her accomplishments as to be appointed reader to the young princesses. At court she was the general favorite, and when she bestowed her hand upon M. Campan, son of the secretary of the royal cabinet, the king gave her an annuity of 5000 livres as dowry. She was soon after appointed first lady of the bedchamber by Marie Antoinette; and she continued to be the faithful attendant of that princess till she was forcibly separated from

her at the sacking of the Tuileries, on 20th June 1792. After this event Mme. Campan, almost penniless, and thrown on her own resources by the illness of her husband, bravely determined to support herself by establishing a school at Saint-Germain. The institution prospered, and was patronized by Mme. Beauharnais, whose influence led to the appointment of Mme. Campan as superintendent of the academy founded by Napoleon at Ecouen, for the education of the daughters and sisters of members of the Legion of Honor. This post she held till it was abolished at the restoration of the Bourbons, when she retired to Mantes, where she spent the rest of her life amid the kind attentions of affectionate friends, but saddened by the loss of her only son, and by the calumnies circulated on account of her connection with the Bonapartes. She died in 1822, leaving interesting *Mémoires sur la vie privée de Marie Antoinette, suivis de souvenirs et anecdotes historiques sur les règnes de Louis XIV.–XV.* (Paris, 1823); a treatise *De l'Éducation des Femmes*, and one or two small didactic works, written in a clear and natural style.

CAMPANELLA, TOMASO (1568–1639), one of the most brilliant and unfortunate of the Italian Renaissance philosophers, was born at Stilo in Calabria in 1568. At a very early age he showed remarkable mental power; his memory was uncommonly tenacious, and before he was thirteen years of age he had mastered nearly all the Latin authors presented to him. In his fifteenth year he entered the order of the Dominicans, attracted partly by reading the lives of Albertus Magnus and Aquinas, partly by his intense love of learning. He was placed at first in the convent at Morgentia in Abruzzo, and after completing his course of philosophy was transferred to Cosenza, there to study theology. He soon became discontented with his teachers, for he earnestly desired to read, not only the works of Aristotle, but the book of nature, which was the language of God. An accident drew his attention to the work *De Rerum Natura* of Telesius, which he read with great eagerness. He was delighted with its freedom of speech and its appeal to nature rather than to authority. His first work in philosophy, for he was already the author of numerous poems, was a defence of Telesius against the attacks of Marta, an Aristotelian. It was styled *Philosophia sensibus demonstrata*, and appeared in 1591. The freedom and boldness of his attacks upon established authority soon brought him into disfavor with the clergy. He left Naples, where he had been residing, and proceeded to Rome. For seven years he led an unsettled life, wandering through Padua, Bologna, Venice and other towns, everywhere attracting attention by the brilliancy of his talents and the boldness of his teaching. Yet Campanella was strictly orthodox, held the established faith, and was an uncompromising advocate of the Pope's temporal power.

He returned to Stilo in 1598. In the following year he was arrested and committed to prison, where he remained for twenty-seven years, suffering much torture and misery. Yet his spirit was unbroken; he composed sonnets, and prepared a series of works, forming a complete system of philosophy, which were published at a later date. During the latter years of his long confinement he was kept in the castle of St. Elmo, and was allowed considerable liberty. There seems, indeed, to have been great doubts even in the minds of those who imprisoned him whether he had done anything deserving such a punishment. Still he was looked upon as dangerous, and it was thought better to restrain his boldness. At last, in 1626, he was set at liberty. For some three years he was confined in the chambers of Inquisition, but in 1629 he was fairly free. He was well treated at Rome by the Pope, but he made enemies; and, profit-

ing by the lessons of experience, he thought it well to avoid future danger by taking flight from Rome. He came to Paris in 1634 under the protection of the French ambassador to Italy, and was received with marked favor by Cardinal Richelieu. The last few years of his life he spent in preparing a complete edition of his works; but only the first volume appears to have been published. He died on the 26th of May 1639.

The philosophy of Campanella is in many respects interesting and important, but it has much that is fantastic, and is wanting in unity and completeness.

In practical philosophy Campanella was an extreme reformer. In his *Civitas Solis* he sketches an ideal state, in which principles of communism are fully carried out. He contends for a community of goods and wives, for state control of population, and for a universal military training. The king in his ideal state is called Hoh, *i.e.*, Metaphysics; his ministers have names meaning respectively Power, Wisdom, and Might. The whole work is cold and abstract, utterly wanting in the rich practical detail of its prototype, the *Utopia*.

CAMPANIA, an ancient province of Italy, separated from Latium on the N. by the Massican Hills, and from Samnium on the E. by the Apennines, and bounded on the W. by the Tyrrhenian Sea, and on the S. by Lucania. It was distinguished by its fertility, beauty, and genial climate, and by the excellence of its harbors. It consists of a plain, broken only by a low volcanic range of hills, of which the chief is Mons Gaurus, and by Mount Vesuvius. The original inhabitants of Campania were Oscans or Ausonians. The first settlers were the Greeks who founded Cumæ, and afterwards Dicæarchia, Palæpolis and Neapolis. It seems pretty certain that the next invaders were the Etruscans, and that they founded Capua and Nola. The Etruscans in turn had to give place to the Samnites. But both these invaders were few in number; and the Campanian people continued to be of essentially Oscan race. The remains of their language are, indeed, our best specimen of Oscan. In the 4th century B.C. war broke out with the Romans, and in 340 B.C., by the battle of Vesuvius, Campania fell into their hands. For subsequent history see ROMAN HISTORY.

CAMPANI-ALIMENIS, MATTEO, an Italian mechanician and natural philosopher of the 17th century, was born at Spoleto.

CAMPANILE, the bell tower attached to the churches and town halls in Italy. Bells are supposed to have been first used for announcing the sacred offices by Pope Sabinian (604), the immediate successor to St. Gregory; and their use by the municipalities came with the rights granted by kings and emperors to the citizens to enclose their towns with fortifications, and assemble at the sound of a great bell. It is to the Lombard architects of the north of Italy that we are indebted for the introduction and development of the campanile, which, when used in connection with a sacred building, is a feature peculiar to Christian architecture,—Christians alone making use of the bell to gather the multitude to public worship. The campanile of Italy serves the same purpose as the tower or steeple of the churches in the north and west of Europe, but differs from it in design and position with regard to the body of the church.

The tallest campanile is the one at Cremona; it rises to a height of 396 feet. Probably the grandest and richest is that designed by Giotto in 1334 for the cathedral at Florence. It measures 275 feet high and 45 feet square; it is entirely veneered with black, red, and white marble, and is divided into five stages, the upper three only having windows. Giotto intended to have finished it with a spire 90 feet high, but Taddeo Gaddi,

who succeeded Giotto as architect, thinking that the tower would not be improved by it, left it as it now exists. Some of the best examples of church campanili are to be found in Venice, Verona, Modena, Cremona, Parma, and Pisa.

The leaning tower or campanile of Pisa, built by the citizens to rival that of Venice, was erected by Bonanno, and begun in the year 1174. It is circular in plan, and about 51 feet in diameter and 172 feet high. Not including the belfry it is divided vertically into seven stages, all of which, with the exception of the lowest, are decorated with an open arcade. The conical covering of the belfry was never constructed. This tower overhangs its base upwards of 13 feet, and for long it was supposed to have been built so. It is founded on wooden piles driven into boggy ground. When the tower had been carried up about 35 feet it began to settle to one side. That no such settlement was ever anticipated may be asserted from the fact that a gargoyle or water-spout to throw off the water from the first arcade, may be observed on what is now the highest side. As the work was carried on, the levels were altered so as to keep the centre of gravity within the base. This tower was finished by an architect called William of Indspruck. The outside is entirely constructed of white marble, and the inside of stone from Verruca. There are many campanili, notably the Garisendi and Asinelli towers at Bologna, that incline to one side,—all from the same cause as at Pisa.

CAMPBELL, SIR COLIN. See CLYDE, LORD.

CAMPBELL, GEORGE (1719-1796), a theologian and Biblical critic, was born at Aberdeen on the 25th December 1719. His father, the Rev. Colin Campbell, one of the ministers of Aberdeen, was the son of George Campbell of Westhall, who claimed to belong to the Argyll branch of the family. Mr. Colin Campbell died in 1728, leaving a widow and six children in somewhat straitened circumstances. George, the youngest son, was destined for the legal profession, and after attending the grammar school of Aberdeen and the arts classes at Marischal College, he was sent to Edinburgh to serve as an apprentice to a writer to the Signet. But he does not seem to have had any liking for law—at any rate he found in theology a study much more to his taste. While at Edinburgh he fell into the habit of attending theological lectures, and this was followed, when the term of his apprenticeship expired, by his enrolment as a regular student in the Aberdeen divinity hall. After a distinguished career he was, in 1746, licensed to preach by the Presbytery of Aberdeen; but his first attempt to obtain a charge—that of Fordoun in Kincardineshire—was unsuccessful. In 1748, however, he was ordained minister of Banchory Ternan, a parish on the Dee, some twenty miles from Aberdeen. Here he spent the next nine years, laboring with much success as a country minister, and planning two at least of the works by which he was afterwards to make himself known. In 1757 he left Banchory Ternan to become one of the ministers of Aberdeen. That city was at the time the centre of no inconsiderable intellectual activity. Reid was professor of philosophy at King's College; John Gregory, Reid's predecessor, held the chair of medicine; Alexander Gerard was professor of divinity at Marischal College; and in 1760 Beattie became professor of moral philosophy in the same college. These men, with others of less note, formed themselves in 1758 into a society for the discussion of questions in philosophy. Reid was its first secretary, and Campbell one of its founders. It lasted till about 1773, and during this period not a few papers were read, particularly those by Reid and Campbell, which were afterwards extended in the form of published treatises.

Meanwhile Campbell was, in 1759, made principal of Marischal College. In 1763 he published his celebrated *Dissertation on Miracles*, a work that originated in a sermon preached two years previously before the Synod of Aberdeen. In it he seeks to show, in opposition to Hume, that miracles are capable of proof by testimony and that the miracles of Christianity are sufficiently attested.

In 1771 Campbell was elected professor of theology at Marischal College, and in consequence he resigned his city charge, although he still preached as minister of Greyfriars, a duty then attached to the chair. His next work was not a theological one. During his early ministerial life at Banchory Ternan he planned and began the composition of a work on rhetoric. The results of his labors were partly communicated to the Aberdeen Philosophical Society, for most of the papers he read there were on "Eloquence" and cognate subjects; but it was not until 1776 that his *Philosophy of Rhetoric* appeared,—a work that at once took a high place among books on the subject, which it can hardly be said even now to have lost. The most interesting portion is perhaps that which treats of evidence; certainly the least satisfactory is that on syllogism. In 1778 his last and, in some respects, his greatest work appeared, *A New Translation of the Gospels*. The translation is a good one, but it is the critical and explanatory notes which accompany it that give the book its high value.

Campbell, who had never enjoyed robust health, was in 1795 compelled by increasing weakness to resign the offices he held in Marischal College, and on his retirement he received a pension of £300 from the king. He did not long enjoy the royal bounty, for he died on the 31st of March 1796 of a stroke of palsy.

CAMPBELL, JOHN, LL.D. (1708-1775), a miscellaneous author, was born at Edinburgh, March 8th, 1708. In 1736 he published the *Military History of Prince Eugene and the Duke of Marlborough*, and soon after contributed several important articles to the *Ancient Universal History*. In 1742 and 1744 appeared the *Lives of the British Admirals*, in 4 vols., a popular work which has been continued by other authors. Besides contributing to the *Biographia Britannica* and Dodsley's *Preceptor*, he published a work on *The Present State of Europe*, consisting of a series of papers which had appeared in the *Museum*. He also wrote the histories of the Portuguese, Dutch, Spanish, French, Swedish, Danish, and Ostend settlements in the East Indies, and the histories of Spain, Portugal, Algarve, Navarre, and France, from the time of Clovis till 1656, for the *Modern Universal History*.

CAMPBELL, THOMAS (1777-1844). This distinguished poet was a cadet of the respectable family of Campbell of Kirnan, in Argyllshire. Owing to the straitened circumstances of his father, who had settled in Glasgow and been unfortunate in business, young Campbell was obliged, while attending college, to have recourse to private teaching as a tutor. Notwithstanding the amount of additional labor thus entailed, he made rapid progress in his studies, and attained considerable distinction at the university over which it was his fortune, in after years, to preside. He very early gave proofs of his aptitude for literary composition, especially in the department of poetry; and so strong was his addiction to these pursuits, that he could not bring himself seriously to adopt the choice of a profession. From private tuition, which is at best an irksome drudgery, he recoiled after a short trial. Neither law, physic, nor divinity had any attractions for him; nor is it probable that he ever would have risen to eminence in a regular profession, owing to a constitutional sensitiveness almost morbid, and a want of resolute energy.

We find him at the age of twenty in Edinburgh, attending lectures at the university, soliciting employment from the booksellers, and not unknown to a circle of young men then resident in the Scottish metropolis, whose names have become historical. Among those were Walter Scott, Henry Brougham, and James Graham, the author of the *Sabbath*. He also became acquainted with Dr. Robert Anderson, editor of a collection of the British poets, a man of extreme enthusiasm and kindness of disposition, who early appreciated the remarkable powers of Campbell, and encouraged him to proceed in his literary career. In 1799 his poem, *The Pleasures of Hope*, was published.

Probably there is no parallel instance of literary success so instantaneously achieved by a first effort; nor was that owing to novelty of design on the part of the author, or the caprice of the public.

The first success of Campbell brought him fame, but not fortune. He had disposed of the copyright of the *Pleasures of Hope*, by his original bargain with the publishers, for a sum certainly moderate, which, however, probably exceeded his expectations at the time. He was, moreover, very kindly treated, for he received a considerable unstipulated allowance for each new edition, which circumstance ought to have deterred him from uttering certain diatribes against "the trade," in which he was afterwards rather prone to indulge. The fact is that he did not know how to make use of his success. Instead of availing himself of the reputation which he had so worthily and decisively won, and applying himself to a new effort, he went abroad without any determinate aim; was perfectly wretched on the Continent, where he had no friends, and was sorely embarrassed for want of means; and began to write fugitive poetry for the London journals. On his return to Britain he had ample opportunity of bettering his condition. With a name such as his, a moderate amount of exertion would have secured him not only a competence but comparative affluence; but indolence, perhaps the result of timidity, had grown upon him. Campbell never could adapt himself even to the profession of literature, which, precarious though it be, is not without its prizes. In that profession, as in all others, the requisites for success are steadiness, punctuality, and perseverance; but Campbell possessed none of them. The publishers were ready, and offered to give him lucrative employment, nor was he at all backward in accepting their offers; but when the period for performance arrived he had literally done nothing. In extraordinary contrast to him stands Scott, who seemed simply to will in order to conceive and execute. Campbell had many bright conceptions, but he could not apply himself to the work. Of course he lost repute with the men who alone can intervene between an author and the public, and "the fathers of the Row" became chary of offering him engagements. Some idea of the extent of his habitual indolence may be formed from the fact, that the publication of his *Specimens of the British Poets* did not take place until thirteen years after the work was undertaken!

In the meantime Campbell married; and his prospects were of the darkest, when, in 1805, he received a Government pension of £200. He was then in great distress, and even that aid, material as it was, failed to extricate him. It was probably fortunate for his fame that such was the case, for in 1809, he published his poem of *Gertrude of Wyoming*, to which were attached the most celebrated of his grand and powerful lyrics.

Among Campbell's lengthier poems *Gertrude of Wyoming* must hold the second place. He designed it for a poem of action, but he has failed to give it that interest and vivacity which a poem of action requires. There is in it too decided a predominance of the sentimental

vein, and an extreme degree of elaboration, which in poetry as in painting is hurtful to the general effect.

One or two of Campbell's lyrical pieces, in particular, *Lochiel's Warning* and *Hohenlinden*, are to be referred to an earlier period than the composition of *Gertrude*; but there are others of a later date which show how much power remained in the man when he chose to exert it freely. There are few lyrics in the English language to be placed in comparison with the *Mariners of England* or *The Battle of the Baltic*; and his exquisite poem of *O'Connor's Child*, which has not unaptly been termed the diamond of his casket of gems, is greatly superior in pathos and passion to his more elaborate compositions.

Campbell was now settled at Sydenham in England, and his circumstances were materially improved. His home was a happy one; the society in which he moved was of the most refined and intellectual character; and he enjoyed the personal friendship of many of his distinguished contemporaries. Ample leisure was afforded him to carry into effect any of the cherished schemes of his literary ambition; but his indolence and inherent want of resolution again interfered. His most noteworthy exertion for years appears to have been the preparation of a short course of lectures on poetry, which he delivered with great *éclat* at the Royal Institution in London and elsewhere. It appears that at one time it was proposed by his friends, and especially by Sir Walter Scott, that he should become a candidate for the occupancy of a literary chair in the University of Edinburgh; but he shrank from the idea of undertaking so serious a labor as is involved in the preparation of a thorough academical course. In 1820 he accepted the editorship of the *New Monthly Magazine*, and acted in that capacity for a considerable period, until he resigned it to take charge of the *Metropolitan*. In 1824 he published his *Theodric*, a poem which, in spite of some fine passages, was generally considered as a failure. With *Theodric* his poetical career may be said to have closed.

In fact it appeared that the rich mine of poetry had been worked out. Without actually adopting that conclusion, we may observe that Campbell had latterly occupied himself most zealously with matters which were apart from his earlier pursuits. In the first place, he took an active share in the Institution of the London University, and it was mainly through his exertions that it was saved from becoming a mere sectarian college. Shortly afterwards, in 1826, he was elected Lord Rector of the University of Glasgow, an event which he considered as the crowning honor of his life, and which certainly was a mark of distinction of which any man might have been proud.

The remainder of his life presents few features of interest. Domestic calamity had overtaken him. His wife, whom he loved affectionately, had been taken from him—of his two sons, one died in infancy and the other was afflicted by an incurable malady. His own health became impaired. He gradually withdrew from public life, and died at Boulogne on 15th July 1844, at the age of sixty-seven. His last hours were soothed by the affectionate care of his relatives and friends; nor did his countrymen forget the poet in his death, for his remains were solemnly interred in Westminster Abbey, with the honors of a public funeral.

Few poets of reputation, whose span has been extended nearly to the threescore and ten allotted years, have written so little as Campbell; at the same time it must be confessed that there are fewer still whose works are likely to be prized by posterity in the like proportion with his. If we throw out of consideration altogether *Theodric*,—though some might demur to such an ex-

cision,—if we overlook the *Pilgrim of Glencoe*, and weed from his lyrical garden such plants as have little charm either from their color or their fragrance, there will still remain a mass of poetry familiar to the ear and the heart, such as hardly any other writer of this century has been able to produce.

CAMPBELL, JOHN, BARON (1779–1861), the second son of the Rev. George Campbell, D.D., was born at Cupar Fife, on 17th September 1779. His father was for fifty years the parish minister of Cupar. For a few years young Campbell studied at the United College, St. Andrews, where he met Thomas Chalmers. In 1800 he was entered as a student at Lincoln's Inn, and became a pupil of the well-known special pleader Mr. Warren, the master of Lyndhurst, Denman, and Cottenham. A few days after his entrance, as he records in his *Lives of the Chancellors*, he saw and heard Lord Thurlow speak in the House of Lords. After a short connection with the *Morning Chronicle* he was called to the bar in 1826. When George IV. died (26th June 1830) and Parliament was dissolved (24th July), Campbell, like all the new Whig men of the day, resolved to enter Lord Grey's Parliament. With the help of his relative Major Scarlett he contested the borough of Stafford, which he represented in 1830 and 1831.

His political creed declared upon the hustings there was that of a moderate Whig. He maintained the connection of church and state, opposed triennial parliaments and the ballot, and railed against the dictatorship of the great duke. Although in his relations with his constituents in both England and Scotland there were traceable an unpleasant spirit of accommodation and cajolery, in Parliament his position, both political and religious, was always well defined and independent. There he continued to lend the most effective help to the Liberal party. His speech in 1835 in support of the motion for inquiry into the Irish Church Temporalities with a view to their partial appropriation for national purposes contains much terse argument, and no doubt contributed to the fall of Peel and the formation of the Melbourne cabinet. His defence of the *Times* newspaper, which had accused Sir John Conroy, equerry to the duchess of Kent, of misappropriation of money (1838), is chiefly remarkable for the confession—"I despair of any defination of libel which shall exclude no publications which ought to be suppressed, and include none which ought to be permitted." But his most distinguished effort at the bar was undoubtedly the speech for the House of Commons in the famous case of *Stockdale v. Hansard*. The Commons had ordered to be printed, among other papers, a Report of the Inspectors of Prisons on Newgate, which stated that an obscene book, published by Stockdale, was given to the prisoners to read. Stockdale sued the Commons' publisher, and was met by the plea of parliamentary privilege, to which, however, the judges did not give effect, on the ground that they were entitled to define the privileges of the Commons, and that publication of papers was not essential to the functions of Parliament. The matter was settled by the Act 3 Vict., c. 9.

In 1840 Campbell conducted the prosecution against John Frost, one of the three Chartist leaders who attacked the town of Newport, all of whom were found guilty of high treason. We may also mention, as matter of historical interest, the case before the High Steward and the House of Lords which arose out of the duel fought on Wimbledon Common between the earl of Cardigan and Captain Harvey Tuckett. The law of course was clear that the "punctilio which swordsmen falsely do call honor" was no excuse for wilful murder. To the astonishment of everybody

Lord Cardigan escaped from a capital charge of felony because the full name of his antagonist (Harvey Garnett Phipps Tuckett) was not legally proved. It is difficult to suppose that such a blunder was not preconcerted. Campbell himself made the extraordinary declaration that to engage in a duel which could not be declined without infamy (*i. e.*, social disgrace) was "an act free from moral turpitude," although the law properly held it to be wilful murder. Next year, as the Melbourne administration was near its close, Plunkett, the venerable chancellor of Ireland, was forced by discreditable pressure to resign, and the Whig attorney-general, who had never practiced in equity, became chancellor of Ireland, and was raised to the peerage with the title of Baron Campbell of St. Andrews, in the county of Fife. The post of chancellor Campbell held for only sixteen days, and then resigned it to his successor Sir Edward Sugden (Lord St. Leonard's). It was during the period 1841-49, when he had no legal duty, except the self-imposed one of occasionally hearing Scotch appeals in the House of Lords, that the unlucky dream of literary fame troubled Lord Campbell's leisure. By two days' court work in Dublin he had received a pension of £4,000 per annum from an ungrateful country, and he suddenly remembered what both Coke and Bacon had said about the debt due from every successful lawyer.

Following in the path struck out by Miss Strickland in her *Lives of the Queens of England*, and by Lord Brougham's *Lives of Eminent Statesmen*, he at last produced, in 1849, *The Lives of the Lord Chancellors and Keepers of the Great Seal of England, from the earliest times till the reign of King George IV.*, 7 vols. 8vo. The conception of this work is magnificent; its execution wretched. And yet the book is an invaluable repertory of facts, and must endure until it is superseded by something better. It was followed by the *Lives of the Chief Justices of England, from the Norman Conquest till the death of Lord Mansfield*, 8vo. 2 vols., a book of similar construction but inferior merit.

On the resignation of Lord Denman in 1850, Campbell was appointed Chief Justice of the Queen's Bench. For this post he was well fitted by his knowledge of common law, his habitual attention to the pleadings in court, and his power of clear statement. On the other hand, at *Nisi Prius* and on the criminal circuit, he was accused of frequently attempting unduly to influence juries in their estimate of the credibility of evidence. It is also certain that he liked to excite applause in the galleries by some platitude about the "glorious Revolution" or the "Protestant succession." He assisted in the reforms of special pleading at Westminster, and had a recognized place with Brougham and Lyndhurst in legal discussions in the House of Lords. But he had neither the generous temperament nor the breadth of view which is required in the composition of even a mediocre statesman. In 1859 he was made Lord Chancellor of Great Britain, probably on the understanding that Bethell should succeed as soon as he could be spared from the House of Commons. His short tenure of this office calls for no remark. His life is the triumph of steady determination unaided by a single brilliant or attractive quality. He died June 23, 1861.

CAMPBELTOWN, a royal burgh and seaport of Scotland, in Argyllshire, situated on an indentation of the coast, near the southern extremity of the peninsula of Kintyre. Population, 5,000.

CAMPE, JOACHIM HEINRICH (1746-1818) a German educationist, was born at Deensen in Brunswick in 1746. He studied theology at the university of Halle, and after acting for some time as chaplain at Potsdam, he accepted a post as director of studies in the Philan-

thropin at Dessau. He soon after set up an educational establishment of his own at Trittow, near Hamburg, which he was obliged to give up to one of his assistants within a few years, in consequence of feeble health. In 1787 he proceeded to Brunswick as counsellor of education, and purchased the *Schulbuchhandlung*, which under his direction became a most prosperous business. He died in 1818. His numerous educational works were widely used throughout Germany.

CAMPEACHY, or CAMPECHE, a fortified town of Mexico, formerly in the province of Yucatan, but now the capital of a new state to which it gives its name, is situated on the west side of the peninsula on the shore of the Bay of Campeachy. The town is generally well built, though the houses, chiefly of limestone, are for the most part only one story in height. Its public edifices, several of which are substantial structures, comprise a citadel, several churches and convents, a theatre, a museum, a college, a school of navigation, a hospital, and a custom-house. The port, though of considerable extent, and defended by a breakwater 160 feet long, is very shallow, and vessels drawing more than 10 feet have to anchor upwards of a mile from shore. During the Spanish domination Campeachy had a monopoly of the imports to Yucatan, and it still maintains a fair amount of commercial activity. There is a large trade in logwood (*Palo de Campeche*, or Campeachy wood), and considerable quantities of wax, cotton, hides, and cigars are also exported. Shipbuilding is carried on, and salt and marble are obtained in the neighborhood. A railway connects it with Minatilan, a distance of 385 miles. The vicinity is interesting for its Indian remains; and the city itself is said to be "built over extensive artificial galleries or catacombs, supposed to have been devoted by the ancient people [Mazas] to sepulchral uses." The population, which numbered 15,500 in 1865, is now nearer 19,000.

CAMPEGGIO, or CAMPEGGI, LORENZO (1479-1539), Cardinal, was born at Bologna in 1479. He was the son of an eminent lawyer, and for some years was himself engaged in the legal profession. But after the death of his wife he entered the church and quickly attained to high office. For his services to the papal cause during the reduction of Bologna, Pope Julius II. raised him to the rank of bishop, and sent him as nuncio to Germany and Milan. In 1517 he became cardinal, and two years later he was sent to England to stir up a religious crusade against the Turks. He was unsuccessful in this mission, but received from Henry VIII., in 1524, the bishopric of Salisbury. Towards the close of 1528 he came over to England to assist Wolsey with regard to Henry's contemplated divorce from Katherine. He failed to accomplish anything, and left in the following year. The bishopric of Salisbury was withdrawn from him, and though at a later date (1536) it seemed possible that he might regain it, his expectations were disappointed. He died at Rome in 1539, just as he was about to set out on an embassy to Vicenza.

CAMPER, PETER (1722-1789), a celebrated anatomist and naturalist, was born at Leyden, May 11, 1722. He was educated at the university of Leyden, and in 1746 graduated in philosophy and medicine. After the death of his father in 1748 he spent more than a year in England, studying under the most famous medical teachers in London. He then visited Paris, Lyons, and Geneva, and returned to Franeker, where he had been appointed to the professorship of philosophy, medicine, and surgery. He visited England a second time in 1752, and in 1755 he was called to the chair of anatomy and surgery at the Athenæum in Amsterdam. He resigned this post after six years, and retired to his country house near Franeker, in order uninterruptedly to carry

on his studies. In 1763, however, he accepted the professorship of medicine, surgery, and anatomy at Groningen, and continued in the chair for ten years. He then returned to Franeker, and after the death of his wife in 1776 spent some time in traveling. He made the acquaintance of Diderot and Marmontel at Paris, and was received with great respect by Frederick the Great at Potsdam. In 1762 he had been returned as one of the deputies in the assembly of the province of Friesland, and the latter years of his life were much occupied with political affairs. In 1783 he was nominated to a seat in the council of state, and took up his residence at the Hague. His death (April 7, 1789) was caused by a violent pleurisy, the effects of which were accelerated by political excitement.

CAMPERDOWN. See DUNCAN, Adm.

CAMP FOLLOWERS are the sutlers and servants who follow an army. They are at all times under the control of the commanding officer, but only subject to military law when in the field.

CAMPHAUSEN, WILHELM, a German painter, born February 8, 1818, at Düsseldorf, and from 1859 professor in the art academy there. He was specially famous for battle-pieces—scenes from Cromwell's battles, the Thirty Years' War, the wars of 1866 and 1870—and painted many notable portraits of soldiers and equestrian figures. He died June 16, 1885.

CAMPHENE, or CAMPHILENE, is an artificial variety of camphor obtained from turpentine by acting thereon with the dry vapor of hydrochloric acid, and keeping the whole at a low temperature by immersing the vessel in a freezing mixture.

CAMPHINE is the name applied to a variety of spirits of turpentine obtained from the *Pinus australis* of the Southern States and formerly used as an illuminant. It is very volatile, burning freely with a pure white brilliant light. Its vapor forms with air a very explosive mixture.

CAMPHOR is a colorless, translucent body, having a tough waxy structure, with a specific gravity about equal to that of water, melting at 347° Fahr. and boiling at 400°. It volatilizes readily at ordinary temperatures, giving off that peculiarly pungent aromatic odor which is characteristic of the substance. It is very slightly soluble in water, to which it communicates its warm camphoraceous taste; but it dissolves with facility in alcohol, ether, fixed and volatile oils, naphtha, etc. In its chemical constitution it is analogous to the solid stearoptines deposited by many essential oils, especially such as are derived from labiate plants.

The greater part of the camphor of Western commerce is obtained by distillation from the wood of a tree, *Camphora officinarum*, belonging to the Natural Order *Lauraceæ*. It is produced most largely in the Island of Formosa, the area of production being a narrow belt of debatable land separating the Chinese settlement from the territory held of the aboriginal inhabitants of the island. The preparation of the product is consequently attended with considerable danger, owing to the mutual jealousies and encroachments of the natives and the Chinese.

Camphor is extensively employed in medicine both internally and externally as a stimulant, but its chief medicinal use is in the preparation of liniments, into the composition of many of which it enters. It has a vulgar reputation as a prophylactic, on which account it is in great demand during serious epidemics. It possesses properties invaluable to naturalists and others for keeping furs, skins, and other animal substances free from moths; and it similarly preserves cabinets of insects from attack. A very large quantity of camphor is consumed in India, and generally throughout the East.

CAMPHUYSEN, DIRK RAFAELSZ (1586-1627), a Dutch painter, poet, and theologian, the son of a surgeon at Gorcum, was born in 1586. As he manifested great artistic talent, his brother, in whose charge he was left on the death of his parents, placed him under the painter Govitz. His chief solace was poetry; and he has left a translation of the Psalms, and a number of short pieces, remarkable for their freshness and depth of poetic feeling. His pictures, like his poems, are mostly small, but of great beauty. The best of his works are his sunset and moonlight scenes and his views of the Rhine and other rivers. The close of his life was spent at Dokkum, where he died in 1627.

CAMPI, BERNARDINO, a pupil of Giulio Campi, who adopted a less ambitious style, but is equal and in some respects superior to his master. Bernardino was born at Cremona in 1525, and began life as a goldsmith. After an education under Giulio Campi and Ippolito Corta, he attained such skill that when he added another to the eleven Cæsars of Titian, it was impossible to say which was the master's and the imitator's. He was also much influenced by Correggio and Raffaele.

CAMPI, GIULIO, the founder of a school of Italian painters, was born at Cremona about 1502, and died in 1572. He was son of a painter, Galeazzo Campi, under whom he took his first lessons in art. He was then taught by Giulio Romano; and he made a special study of Titian, Correggio, and Raffaele. His works are remarkable for their correctness, vigor, and loftiness of style.

CAMPIAN, EDMUND (1540-81), a celebrated English Jesuit, was born at London in 1540, and was hanged in 1581 for treason.

CAMPLI, a town of Italy, in the province of Abruzzo Ulteriore I., five miles north of Teramo. It has a cathedral, an abbey, and several churches and convents. Population, 7,770.

CAMP-MEETINGS are out-door gatherings of devout persons, continued for several days at a time, with the view of securing prolonged and uninterrupted religious exercises. Assemblies of a like kind have been more or less usual at various periods in the history of the Christian Church; but it was in connection with Methodism in America that such meetings became especially prominent.

CAMPOBASSO, a city of Italy, the capital of the province Molise, fifty-three miles north-northeast of Naples. Population, 14,000.

CAMPOBELLO, a town of Sicily, in the province of Trapani, seven miles east-southeast from Mazzara. In the neighborhood are the interesting quarries of Rocca di Cusa, from which the blocks were obtained for the buildings of the ancient Selinus. Population, 5,575.

CAMPOBELLO DI LICATA, a town of Sicily, in the province of Girgenti, and twenty miles east-southeast of the city of that name, on a tributary of the Salso. It possesses valuable sulphur mines. Population, 6,301.

CAMPO-FORMIO, a village of Northern Italy, celebrated for the treaty of peace here concluded on October 17, 1797, between Austria and the French Republic, whose army, under Bonaparte, after subjugating Italy (1796), had crossed the Noric Alps, and threatened Vienna.

CAMPOMANES, PEDRO RODRIGUEZ, CONDE DE (1710-1802), a Spanish statesman and writer, was born in Asturias about 1710, or, according to other authorities, in 1723. His principal works are two admirable essays, *Discurso sobre el Fomento de la Industria Popular*, 1774, and *Discurso sobre la Educacion Popular de los Artesanos y su Fomento*, 1775.

CAMUCCINI, VINCENZO (1775-1844), the most famous of the modern historical painters of Italy, was



born at Rome, 1775. He was educated by his brother Pietro, a picture-restorer, and Bombeli, an engraver, and, up to the age of thirty, attempted nothing higher than copies of the great masters, his especial study being Raffaele. As an original painter, Camuccini belongs to the school of David. He was appointed director of the Academy of San Luca and of the Neapolitan Academy at Rome, and conservator of the pictures of the Vatican. He was also made chevalier of nearly all the orders of Italy, and member of the Legion of Honor. His chief works are the classical paintings of the Assassination of Cæsar, the Death of Virginia, the Devotion of the Roman Women, Young Romulus and Remus, Horatius Cocles, the St. Thomas which was copied in mosaic for St. Peter's, the Presentation of Christ in the Temple, and a number of excellent portraits. He died at Rome September 2, 1844.

CAMUS, CHARLES ETIENNE LOUIS (1699-1768), a French mathematician and mechanic, was born at Crécy-en-Brie, near Meaux, on August 25, 1699.

CANA, of Galilee, a village of Palestine, remarkable as the birthplace of Nathanael, and the scene of Christ's "beginning of miracles." Its exact site is unknown, but it is evident from the Biblical narrative that it was in the neighborhood of Capernaum.

CANAAN, a geographical name of archaic Hebrew origin, generally supposed to mean "depression," "low-land," and hence fitly applied to various low-lying districts of Syria, viz., Phœnicia, Philistia (Zeph. ii. 5), and the valley of the Jordan (as implied in Num. xiii. 29, *cf.* Josh. xi. 3). It is, however, applied to the whole of the territory conquered by the Israelites on the west side of the Jordan (Gen. xi. 31, xii. 5; Num. xiii. 2, 17, &c.), the boundaries of which are given in Gen. xv. 18 as "the river of Egypt," (*i. e.*, the Wâdy, or torrent-valley, el-Arish), and "the great river," the River Euphrates. Probably the Israelites found the name in use in the Jordan Valley, and as a part of this was the first district they conquered, extended it to their subsequent acquisitions.

CANAANITES. Only two of the possible senses of the word Canaanite need to be referred to; for the others, see PHœNICIANS and PHILISTINES. And as one of these is included in the other, let us pass at once to the Canaanites in the large sense, *i. e.*, the whole group of nations conquered by the Israelites on the west side of the Jordan. The group is variously described. It is sometimes said to consist of five—Canaanites, Hittites, Amorites, Hivites, Jebusites (Exod. xiii. 5); sometimes of six, the Perizzites, *i. e.*, *Pagani*, being added (Exod. iii. 8, 17, xxiii. 23, xxxiii. 2, xxxiv. 11; Deut. xx. 17; Josh. ix. 1, xii. 8); sometimes of seven, by including the Girgashites (Deut. vii. 1; Josh. iii. 10, xxiv. 11); once of ten, omitting the Hittites, and including the aboriginal Rephaim and three Arab tribes, the Kenites, Kenizzites, and Kadmonites (Gen. xv. 19-21). The latter, however, are clearly inserted by mistake, as they only became inhabitants of Palestine, so far as they did become such, as the reward of assistance given to the Israelites. There are only two of these nations about whom we have any collateral information—the Hittites and the Amorites. The former, however, seem also to have been included among the Canaanites by mistake. Historical evidence, both Biblical and extra-biblical, proves convincingly that they dwelt beyond the borders of Canaan; and linguistic evidence tends on the whole to show that they did not even speak a Semitic language (see HITTITES). The latter, too, were not entirely homogeneous with the other Canaanitish peoples, if the notice in Deut. iii. 11 ("Og . . . of the remnant of the Rephaim"), *ibid.* 13; Josh. xii. 4, xiii. 12, may be taken as historical. Perhaps, as Ewald suggests,

they were mixed with the aborigines. A Semitic basis seems probable, but has only one linguistic fact in its favor—Senir, the Amorite name of Hermon (Deut. iii. 9), mentioned also in an inscription of Shalmaneser (*Brit. Mus. Coll.* vol. iii. p. 5, No. 6, l. 45); personal names like Og and Sihon may easily have been Semiticized, and the name Amorite itself, being probably descriptive (see AMORITES), has no ethnological value. They are at all events un-Canaanitish in their political capacity, two considerable states having been founded by them on the east of the Jordan (Deut. iii. 8; Josh. xii. 2; Judg. x. 8, xi. 22). It will therefore be better to exclude Hittites and Amorites from the present notice.

It is extremely difficult to draw any distinction between the remaining members of the Canaanitish group. As described in the early books of the Old Testament, they have a general family likeness. They are described as living in a state of disintegration, the combined result of the Semitic love of independence and of the varied conformation of the soil. Thirty-one of their petty kings are mentioned in Josh. xii. 9-24, including the king of Hazor (afterwards reckoned to Naphtali), whose realm, in Judg. xi. 10, is called "the chief of all those kingdoms."

No doubt the Israelites at first put an end to much of which they could not discern the value, or, to use their own phrase, made it a *khérem*, a thing consecrated to God by destruction. The origin of Hebrew literature would not be such a blank if the sacred archives of Kiryathsépher, or "the Book-city," otherwise called Kiryathsannah, or "the Law-city (?)" (Josh. xv. 15, 49), had been preserved. Still the attractions of culture were superior in the long run to the dictates of religious zeal. Goodly houses, vineyards, and oliveyards (Deut. vi. 10, 11) were agents more powerful even than chariots of iron.

CANADA, geographically and politically, differs widely from the British colony known by that name prior to 1867. Before that date the country embraced under the name of Canada included a region about 1400 miles in length and from 200 to 400 miles in breadth, extending from the watershed west of Lake Superior eastward to Labrador. Alongside of it lay the independent British provinces of Nova Scotia, New Brunswick, Prince Edward Island, and Newfoundland, and beyond it to the north and the west the vast regions abandoned to the Hudson's Bay Company. But various causes combined to impress on Canadian statesmen the desirableness of uniting the colonies of British North America into one political confederation.

On the cession of Canada to Great Britain in 1763, its French colonists were guaranteed the free exercise of the Roman Catholic religion, and equal civil and commercial privileges with British subjects. Further privileges were secured by "the Quebec Act" of 1774, whereby the old French laws, including the custom of Paris, the royal edicts, and those of the colonial intendants under the French regime, were declared binding in relation to all property and civil rights; while the criminal law was superseded by that of England with its trial by jury. The seignories, with their feudal rights and immunities, were also perpetuated; and thus under the fostering protection of England, the colonial life of the France of Louis XV. and the regency survived in the "New France" of Canada, unaffected by the Revolution of 1792. But the whole French population at the date of the conquest did not exceed 65,000. From Great Britain, and still more from the older colonies, emigrants hastened to occupy the new territory to the north of the St. Lawrence. On the declaration of independence by the revolted colonies in 1776, the loyal

ist refugees were welcomed by the Provincial Government, settled on land in Upper Canada, and aided with funds and farming implements; and these were followed by emigrants from Great Britain. But it was not till 1791 that the rule of a governor, aided solely by a council appointed by the Crown, was superseded by the grant of a constitution establishing the Government with an elective legislature. At the same time Upper Canada, with its purely British settlers, was made a separate province from the old French colony of Lower Canada. At this date the population of Lower Canada had increased to upwards of 130,000, and that of Upper Canada was about 50,000. According to the first strictly reliable census of 1811 it amounted to 77,000. But the increase of population of Lower Canada was in part due to the immigration of British settlers. In 1793 a Protestant bishop of Quebec was appointed by the home Government; and in 1804 a cathedral was erected for him at Quebec, on the site of the old Recollet church. Dr. Jacob Mountain, the Anglican bishop, exerted himself in the cause of education. Parliament enacted the establishment of free schools throughout the parishes of Lower Canada, but to this the Roman Catholic clergy gave resolute opposition; and in various other ways a spirit of antagonism began to manifest itself between the French inhabitants and the British population.

The war of 1812 followed; and during the protracted struggle on the Canadian frontier till the signing of the treaty of Ghent in 1814, the French and British colonists were united in loyalty to England; but with the restoration of peace internal political difficulties revived. The legislative and executive councils were at an open variance with the popular representative assemblies; and a new element of strife created antagonism between Upper and Lower Canada. The position of Quebec and Montreal gave to Lower Canada a control over the exports and imports of the country; financial misunderstandings arose between the two provinces respecting their rightful share of import duties; and a proposal, first made in 1822, for a legislative union between Upper and Lower Canada, was at length carried out in 1841, accompanied by important concessions designed to confer on the majority of the representatives of the people that influence over the executive Government which constituted the essential element of responsible government in England. But while the British colonists were divided by the old English party lines, the French Lower Canadians, united by local interests, race, and religion, were able to hold the balance of power whenever the two British parties divided on points of sufficient importance to preclude a compromise. Thus while the advantages of soil and climate, the industry, and the consequent wealth of Upper Canada, enabled it to contribute an ever-increasing proportion of the revenue of the united provinces, it frequently received a very partial share in their distribution, and was liable to be outvoted on questions in which both local feeling and local interests were largely involved. This condition of things was turned to account in the party contests of the time with an ever-increasing irritation and sense of wrong on the part of the British colonists of Upper Canada, until a common feeling overrode party lines, and matters were brought practically to a deadlock.

This it was which led to the idea of a legislative (federal) union among the various British American colonies, while reserving to each the control of its own local government; and the common dangers to which they were exposed by results springing out of the great American civil war furnished additional motives to such a union. The leaders of different parties representing the various interests of the provinces, after mature deliberation, agreed to the principles of the proposed confederation, and the

Imperial Government responded by giving it the requisite force of parliamentary authority. The Imperial Act, known as "the British North America Act, 1867," provided for the voluntary union of the whole of British North America into one general confederation, under the name of the Dominion of Canada. Thus the older provinces have preceded, even by centuries, the Dominion within which they are now embraced, and have a separate history of their own. The Dominion thus constituted consists at present of the old provinces of Upper and Lower Canada, now designated respectively Ontario and Quebec, along with Nova Scotia, New Brunswick, Prince Edward Island, Manitoba, and British Columbia. To it also pertain the territories in the northwest, largely, as yet, unsettled, with power to receive them into the confederacy when they acquire the requisite population and organization of provinces. Provision is also made in the Imperial Act for the admission of Newfoundland into the confederacy. It is further provided that the constitution of the Dominion shall be "similar in principle to that of the United Kingdom;" that the executive authority shall be vested in the sovereign of Great Britain and Ireland, and carried on in his name by a governor-general and privy council; and that the legislative power shall be exercised by a parliament consisting of an Upper House, or "Senate," the members of which are nominated for life, by summons under the great seal of Canada, and a "House of Commons," duly elected by the several constituencies of the various provinces in proportion to the relative population of each.

The Act of Confederation came into operation on the 1st of July 1867, at which date the provinces of Ontario and Quebec were united to the maritime provinces of Nova Scotia and New Brunswick. In 1870 the newly created province of Manitoba, in 1871 that of British Columbia, and 1873 that of Prince Edward Island, were successively admitted into the confederation. A lieutenant-governor and council were in 1882 appointed to administer the affairs of the northwest territories, four districts of which then received a provisional government, with representation at Ottawa; thus the whole of British North America has been organized into a united political confederacy under the name of the Dominion of Canada.

Previous to the confederation of the provinces, Labrador E. of a line drawn due N. of Anse au Sablon, was independent of Lower Canada, and it still remains politically attached to Newfoundland. The tract of country known as Canada till 1867 extended from Labrador westward to the high land beyond Lake Superior, and from the St. Lawrence Valley and the great lakes northward to the watershed between them and the Hudson Bay, and embraced an area of 331,220 square miles. This extensive region, which constituted the most important colony of England, is now included in a dominion which stretches across the North American continent from the Atlantic to the Pacific Ocean, and embraces an area of 3,500,000 square miles. The vast prairie lands of the great north-west, thus embraced within the Dominion, and out of which the province of Manitoba has been already formed, include the most fertile region of the whole continent. Already immigration is setting steadily in that direction; nor can it be doubted that what has remained till recently a desert, traversed annually by migratory herds of buffalo, and only available as a hunting ground for wild Indians and the trappers of the Hudson's Bay Company, is destined to become the seat of populous provinces, and to constitute one of the chief granaries of the world.

By the addition of the maritime British provinces, included originally within the Acadie of the old French régime, Canada has acquired an extensive line of sea-

coast, indented with bays and harbors, offering the most admirable facilities for every branch of maritime enterprise; and to these will, it is hoped, be added ere long the island of Newfoundland, with the command of fisheries unequalled in value either in the Old World or the New. The peninsula of Nova Scotia and the island of Newfoundland form the eastern barriers of British North America, closing the Gulf of St. Lawrence, and commanding the Atlantic coast, with its ocean trade and its inexhaustible fisheries; while Vancouver Island, and the shores of the neighboring mainland, stretch along the Pacific coast, with estuaries, inlets, and well-sheltered harbors, awaiting the development of the growing trade of the Pacific. There the rivers abound in salmon; the whale fisheries of the neighboring ocean already yield valuable returns; and the cod, haddock, and other deep-sea fish invite the enterprise of the young province, and guarantee an inexhaustible source of future wealth.

The people by whom the maritime advantages of the eastern provinces have thus far been enjoyed are peculiarly fitted by origin and training to turn them to the best account. In the early years of the 16th century, when France was striving to outrival Spain in the occupation of the New World beyond the Atlantic, hardy adventurers of Basque, Breton and Norman blood sailed from Dieppe, St. Malo, Rochelle, and other French seaports, and divided among them the traffic in fish and furs of the Newfoundland banks and the Gulf and the River St. Lawrence. The discovery of Canada, and, indeed, of the American continent, is justly assigned to John and Sebastian Cabot, who set out from Bristol under the auspices of Henry VII. of England in 1497, and landed on the coast of Labrador seventeen months before Columbus reached the American mainland. But England was slow to avail herself of the advantages of the discovery. In 1524 Verazzano, a Florentine navigator, sailing under the French flag, coasted the new-found continent from Florida to Cape Breton, and the whole vaguely defined region was appropriated in the name of Francis I. as "La Nouvelle France." Ten years later Jacques Cartier sailed from St. Malo, explored the coasts of Newfoundland, Nova Scotia and New Brunswick, disclosed the noble St. Lawrence, and for a time the Norman and Breton adventurers enjoyed a monopoly of fish, peltries, and whatever else could reward those pioneers of civilization for their adventurous daring and enterprise.

By such hardy adventurers the maritime provinces were originally settled, before Britain awoke to the importance of the fisheries and other valuable resources of the New World. But she in her turn contributed an energetic body of colonists, including many of Scottish origin; and the war of independence led to a considerable influx of loyalist immigrants from the revolted colonies. War, both then and in 1812, had its usual effect in depressing native industry. But with the return of peace the British provinces entered on a prolonged course of prosperity, very partially affected by the political troubles of 1836-7, or even by the American civil war of 1862 and subsequent years. Half a century ago the population of the whole of British North America was less than 1,000,000; in 1871 that of the four provinces of Ontario, Quebec, New Brunswick and Nova Scotia, amounted to 3,485,761; and the population of the Dominion now approximate 4,830,000 souls.

So long as Canada was detached in government and all political relations from the maritime provinces, and embraced only Quebec and Ontario, with access to the ocean solely by the St. Lawrence, which is closed for fully five months in the year, it constituted an inland province, subject to many restrictions, and was to a con-

siderable extent dependent on reciprocal relations with the United States for its foreign trade.

The Dominion of Canada extends from 45° N. lat. northward to the Hudson Bay, and reaches from the Atlantic to the Pacific Ocean. In superficial extent it is nearly equal to the whole of Europe, and comprises an area of about 3,456,383 square miles. The larger moiety of this, including the territory formerly held by the Hudson's Bay Company, is the property of the Dominion Government. Of this about 120,000 square miles consist of prairie lands with occasional scattered groves and belts of trees along the rivers, admirably adapted for agriculture. A larger tract, consisting chiefly of timbered land, but interspersed with prairies, and well fitted for settlement and farming operations, may be estimated to cover little short of 500,000 square miles. Beyond those two available regions of land, adapted, by soil and climate, for the growth of wheat and other grains, and the rearing of stock, there is a further belt of land, which, though lying in a colder zone, is timbered, clothed with good natural grasses, and as fit for the growth of barley and oats as are many of the less genial regions of Northern Europe which support a considerable agricultural population. This northern belt of timbered land is estimated at little less than 930,000 square miles. All this, as well as much more still uncleared within the various provinces, has to be settled and brought under cultivation; and out of the great prairie and forest lands of the northwest have yet to be fashioned the future provinces of the Dominion of Canada.

The population of the whole Dominion in 1871, exclusive of Indians beyond the limits of the provinces, was 3,485,761, but to this has since been added the provinces of British Columbia, Manitoba, and Prince Edward Island; thereby increasing the population to nearly 4,000,000. To this a large addition has since been made, both by natural increase and by immigration. The entire population of Canada in 1891, according to the new census, was 4,829,411, inclusive of Indians, of whom there are 122,585.

In the older provinces of Canada the Indians have long since been gathered together into settlements, under the care of superintendents and other officers of the Indian Department, and in some cases, with industrial schools and other organizations for accelerating their progress to an equality in all respects with the white settlers. Missions under the care of different Christian churches have also undertaken the work of religious training, and the supervision of their schools. Of the bands of Indians thus settled on their own reserves, accurate statistics are furnished in the annual reports of the Indian Department. But only a vague estimate can be formed of the actual numbers even of the Crees, Blackfeet, Sioux, and other wild tribes which wander in the vicinity of the Red River and Saskatchewan settlements, or are brought into trading relations with the factors of the Hudson's Bay Company.

The nationalities of the population of Canada are in some respects peculiar. The first settlement made by Europeans, as has been already noted, was by the French navigator Jacques Cartier, or as he is now universally styled, Cartier, in 1535. He explored the coasts of Newfoundland, previously discovered by Cabot, and those of Nova Scotia and part of the Gulf of St. Lawrence, and took possession of them in the name of Francis I. For two centuries and a quarter thereafter Acadie and Canada were provinces of France; and when, in 1759, they passed to English rule, a French population of 65,000 souls changed their allegiance. Everything was then done, consistent with British honor, to make the change as easy as possible. They were

secured in the undisturbed possession of their lands, and in the free exercise of their religion. All ecclesiastical property was respected, and the rights of the church so effectually guarded, that the only remnant of a state church in the Dominion is the Roman Catholic church in the province of Quebec, with its great wealth, its control of education, and its right to levy tithes and other church dues from its adherents. The French laws in like manner remained intact; except in so far as the new subjects of England welcomed the substitution of its criminal law, and trial by jury, for the arbitrary rule of intendants and other representatives of an absolute monarchy. By such means the language and customs of the French population of Canada have been perpetuated, and continue to exercise a marked influence on the character of the country as a whole; though the results of confederation are already tending to diminish this, and to limit the French element to the old province of Quebec. The Canadian population of French descent was in 1881, 1,298,929; and in the fresh stimulus given in recent years to immigration, strong inducements have been held out to the expatriated inhabitants of the former French provinces of Alsace and Lorraine, to seek a home among the French Canadians of Quebec.

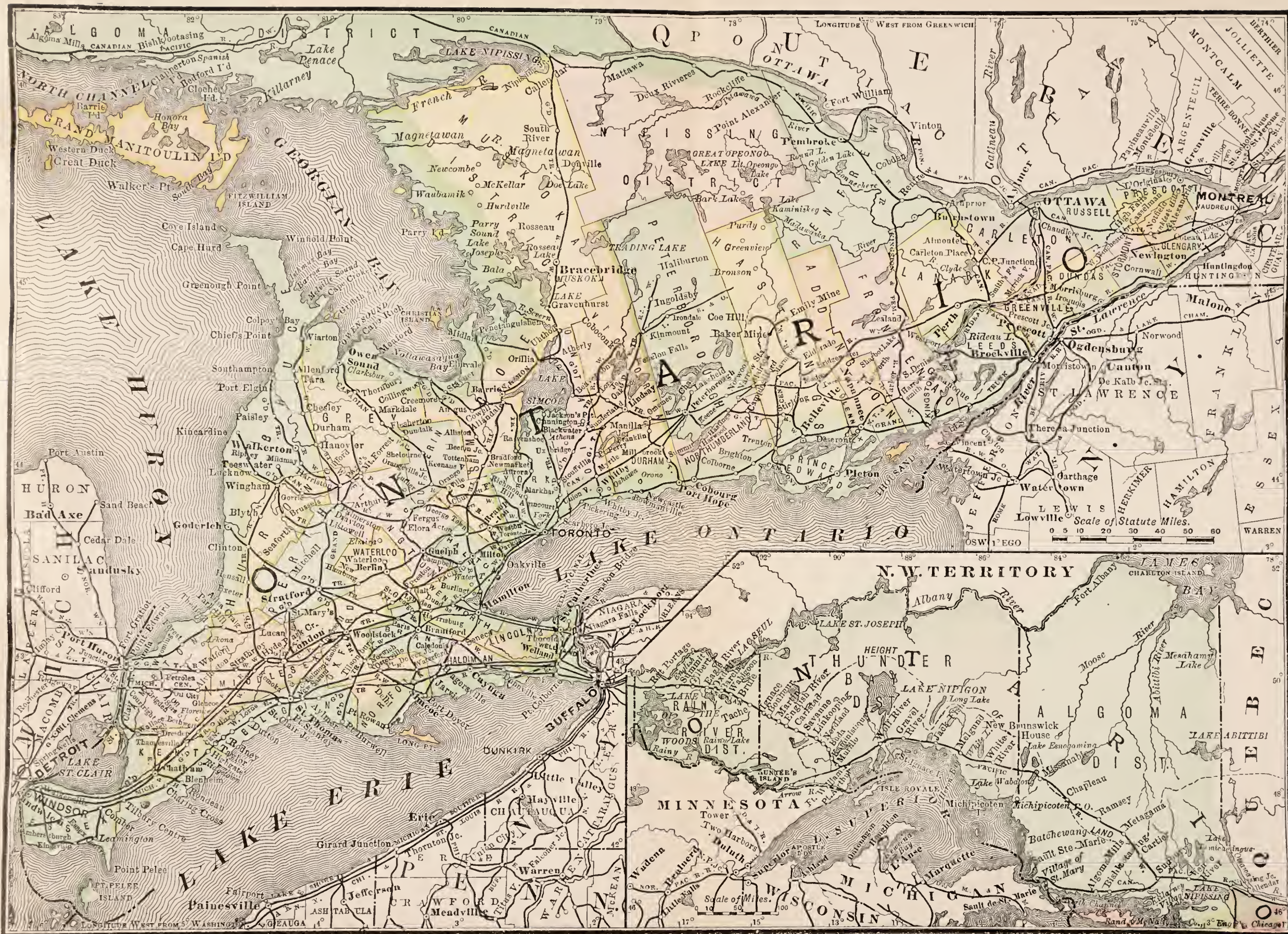
The other nationalities of the Dominion include in the returns of the 1881 census 77,753 natives of the United States in the four provinces of Ontario, Quebec, New Brunswick, and Nova Scotia, who may be assumed to comprise immigrants of English, Scottish, and Irish descent, with an undetermined foreign element. Besides those the Irish population of Canada amounted in 1881 to 957,403, the English to upwards of 880,000, the Scotch to 700,000, the Germans and Dutch to upwards of 284,000, the mixed race of African descent to nearly 22,000; the Welsh to 9900; Swiss, 4,588; Norwegians, Swedes, Danes, and Icelanders, 7000; Italians upwards of 1,849; and Spaniards, 1,100. The abrupt emigration of the Icelanders from their remote Arctic home, consequent on recent volcanic disturbances, along with other causes, has led a number of them to seek a home in Canada. The Mennonites, a Russian sect holding opinions closely allied to the Quakers in reference to bearing arms, have left their homes in large bands, and many of them are settling in Manitoba, and other parts of Canada. Added to all those, have to be taken into account the miscellaneous elements of the new population of British Columbia,—Greek, Mexican, Spanish, French, German, Chinese, and Japanese; in addition to which the native Indian population constitutes an important element. The mixture of Indian and White blood has been considerable in the older provinces, and cannot fail to affect largely the population of Manitoba and the North West. Nevertheless in Canada, as in the United States, British race and British institutions alike predominate, and give a tone and character to the people, the influence of which increases after a few generations, as the foreign element is gradually absorbed into the prevailing stock.

The peculiar geographical position of Canada, in immediate proximity to the United States, places it in very different circumstances from Australia, New Zealand, and other British colonies, in reference to immigration. With thousands annually sailing to New York and other United States ports, yet destined for Canada, and many more selecting the route by Liverpool and Quebec to the Western States, it is only by the definite returns of the decennial census that the actual results of immigration can be determined. The following statements compiled from the official reports of the Minister of Agriculture for the Dominion, to whose department the charge of immigration is assigned, and from the returns of emigrant agents and other sources, will suffice

to convey some accurate idea of the rapid increase of the population from this source. The total number of emigrants from the United Kingdom who landed in the St. Lawrence during the last ten consecutive years, from 1881 to 1891, were 312,310. The number of immigrants entering Canada at all points, in so far as they came under the cognizance of immigrant agents, or other Government officials, who were reported to have settled in the Dominion, were 195,259. The numbers who gave a preference to the route by the St. Lawrence, and, arriving at Canadian ports, proceeded from thence direct to the United States, were 388,720. The increase in the number of immigrant settlers in Canada within the above period, it will be seen has been five-fold.

The variations of the Canadian climate are less than in many countries of much smaller extent. But throughout nearly its whole area, Canada is characterized by greater heat in summer and a much lower temperature in winter than in corresponding European latitudes. Its general character is level, though it includes the Rocky Mountains, with the picturesque and diversified region lying between them and the Pacific, and the Laurentian range, continued northward to the Arctic Ocean.

Besides the great lakes which find their outlet through the St. Lawrence to the sea, there are thousands of lakes throughout Canada, many of them of large dimensions. Foremost among those is Lake Winnipeg. The two great branches of the Saskatchewan take their rise in the Rocky Mountains, and after uniting their streams, flow into this lake, which also receives the Assiniboine, the Red River, and other smaller rivers. The St. Lawrence and the great lakes, of which it is the outlet, are estimated to contain 12,000 cubic miles of water; and the Niagara Falls, which constitute the main feature in the descent from Lake Erie to Lake Ontario, are on a scale commensurate with this vast fresh water system of rivers and lakes. The River Niagara issues from Lake Erie in a broad, tranquil stream, varying in breadth from one to three miles, and continuing through a course of about 15 miles, with a fall of little more than a foot per mile. But on reaching the rapids, the descent is suddenly increased to about 80 feet in less than a mile, before the waters reach the grand leap of about 165 feet perpendicular over the great falls. The Horse-Shoe Fall, on the Canadian side is upwards of a third of a mile broad. Between this and the American Fall Goat Island intervenes; and then another volume of water, about 600 feet wide, plunges with like abruptness into the abyss below. The great breadth as compared with the height of the falls tends in some degree to mislead the eye in the first impression produced; and it is only by slow degrees that the mind is brought to an adequate estimate of the grandeur of the scene. Sir Charles Lyell thus describes the effect produced on his mind, at a first glance, and after prolonged study of all their remarkable features:—"We first came in sight of the Falls of Niagara when they were about three miles distant. The sun was shining full upon them—no building in view—nothing but the green wood, the falling waters, and the white foam. At that moment they appeared to me more beautiful than I expected, and less grand; but after several days, when I had enjoyed a nearer view of the two cataracts, had listened to their thundering sound, and gazed on them for hours from above and below, and had watched the river foaming over the rapids, then plunging headlong into the dark pool, and when I had explored the delightful island which divides the falls, where the solitude of the ancient forest is still unbroken, I at last learned by degrees to comprehend the wonders of the scene, and to feel its full magnificence." The river passes over the centre of the Horse-Shoe Fall in a solid column of water of 165 feet; and it



is estimated that fifteen hundred millions of cubic feet pass over the falls every minute. This great water system of rivers and lakes affects the climate of the older provinces of Canada; and the other large rivers, with the numerous bodies of fresh water distributed over so large a portion of the whole surface of the Dominion, help to preserve an equable climate, and afford many facilities for local transport.

Reckoning Lake Erie and Lake Ontario with the Niagara River as parts of the St. Lawrence, the river system trends in a N.E. direction throughout the whole course from Point Pelee, which is situated in 42° lat., to Tadousac, the earliest French trading port, at the mouth of the Saguenay, in $48^{\circ} 2'$ lat. From this the coast still continues to trend northwards till it merges in the inhospitable shores of Labrador, in a latitude which is still as far south as London at the Strait of Belle Isle. The degrees of latitude indeed, are a very partial guide to the character of the Canadian climate as compared with that of the British Isles; and any statement of the mean temperatures of the two is deceptive. The severity of the winter, as tested by the thermometer, leads to a very exaggerated impression of Canadian experiences. Owing to the dry, clear, bracing atmosphere which generally prevails, the sense of discomfort produced by the raw easterly winds and damp fogs of an English spring suggests an idea of cold, such as is rarely thought of in a Canadian winter. There are indeed, every winter, a few days of intense cold, as in the summer there are brief periods of equally intense heat, when the thermometer ascends, or descends, through a scale unknown in the more equable English climate. But throughout the greater part of the winter season in Canada the sky is bright and clear, and the weather thoroughly enjoyable. Open sleighs are in use by all. Sleighing parties of pleasure are arranged for the period of full moon, that they may return home over the snow, after an evening's enjoyment at some appointed rendezvous; skating, snow-shoeing, and other out-door exercises are in universal favor; and the sound of the sleigh-bells in the open thoroughfares adds to the exhilarating sense produced by the pure bracing atmosphere. Snow accordingly brings with it no such ideas of discomfort as are associated with it in England; while by the farmer it is hailed as altogether beneficial. In the province of Quebec the snow begins to lie early in November; in Ontario it is fully a month later; and it differs correspondingly at various localities throughout the Dominion. But everywhere the appearance of the snow is hailed as seasonable and beneficial. It protects the wheat sown in autumn from the frost, affords facilities to the farmer for bringing his produce to market, aids the lumberer in collecting the fruits of his labor in the forest at suitable points for transport by water with the spring freshets, and so contributes alike to business and pleasure.

Ploughing usually commences in Ontario about the middle of April, and in favorable seasons is prolonged into the month of December. But throughout the Dominion, stretching as it does across the continent, and embracing an area nearly equal in size to Europe, the period varies with the locality, and is affected by the vicinity of the great lakes or other local influences. Cattle are turned out to graze in April, feeding in part upon the tender shoots of the spring forest growth, until the appearance of the young pasture with the disappearance of the snow. Before the end of July harvest begins; and with the rapidity of growth under the warm Canadian skies, the hay, grain, and root crops follow in swift succession; the cleared land is brought again under the plough, and the autumn sowing of wheat is carried on till another abrupt change brings the season

to a close. In this way the Canadian climate is marked by the striking contrast of two seasons—summer and winter,—bringing with them alternations of fruitful labor and of repose intermingled with profitable industry and pleasure. This characteristic prevails with slight variations throughout the greater part of the Dominion. Manitoba presents in this respect no marked diversity from Quebec or Ontario. Spring opens nearly at the same time from Red River to the Athabasca. Early in April the alders and willows of the Saskatchewan country are in bloom; the prairie anemone covers the southern exposures to the very verge of the retreating snow. May there brings with it more of the true summer heat than in the provinces on the St. Lawrence. But the nights are cool, and throughout the period of greatest heats, the cool night breezes beget a welcome and refreshing change, accompanied with heavy dews. This protects the cereals from the effects of drought even in the driest seasons, and produces a rich growth of prairie grass, making the climate peculiarly favorable for the stock farmer.

The character of the Manitoba winter is thus described:—"The winters of the north-west, upon the whole, are agreeable, and singularly steady. The mocassin is dry and comfortable throughout, and no thaw, strictly speaking, takes place till spring, no matter how mild the weather may be. The snow, though shallow, wears well, and differs greatly from eastern snow. Its flake is dry, and hard, and its gritty consistence resembles white slippery sand more than anything else. Generally speaking, the farther west the shallower the snow, and the rule obtains even into the heart of the Rocky Mountains. In south-western Ontario the winter is milder, no doubt, than at Red River; but the soil of the north-west beats the soil of Ontario out of comparison; and after all, who would care to exchange the crisp, sparkling, exhilarating winter of Manitoba for the rawness of Essex in south Ontario."

But the frosts of spring and autumn, not those of winter, are what the Canadian farmer learns to regard with any dread; and this is still more true in reference to the Canadian fruit grower. But in this respect the north-west climate is exceptional in its character. Frosts are common there in the nights of September; but the fact has been noted by many independent observers, that frost which would injure grain in many other countries, appears to be innocuous, or nearly so, on the Red River and the Saskatchewan.

The climate and other conditions to the west of the Rocky Mountains are necessarily marked by much greater local variations owing to the broken character of the country, with its ravines and deep narrow valleys. Stock raising has hitherto largely occupied the attention of the farmers on the Pacific slope, where the farms are called "ranches," after the fashion of the stock farmers of California and New Mexico. The ground produces both cereals and vegetables where irrigation is resorted to, as in the plains and valleys of those states. But the rich natural grass which abounds furnishes nearly all that is needed for the profitable raising of stock; and until a large female immigration restores in some adequate degree the natural proportion of the sexes, the rough life of the "ranch," with its "corral," or cattle-pen, will be preferred to the more settled industry of the agriculturist.

The soil and climate of Canada are such that the country produces a much greater variety of grains and fruits than is usually grown in Great Britain or Ireland. Besides wheat, barley, oats, rye, pease, turnips, potatoes, hemp, flax, hops, and the other ordinary agricultural products of England, which are all raised in abundance, Canada grows tobacco, rice, maize or Indian corn,

and fruits of warmer climes than the British Islands. The full and steady heat of the summer matures with surprising rapidity the most valuable productions, while the long period of repose of the Canadian winter is not only amply atoned for by the rapid and luxuriant vegetation of the summer, but, no doubt, contributes to such results.

The fruits of Canada embrace all that are familiar to the English gardener, with others which the summer there is not warm enough to bring to maturity. The finest melons are grown in abundance in the open ground. In favorable seasons peaches are plentiful in the Niagara peninsula, and in the south-western portions of Ontario, along the shores of Lake Erie and the Detroit River. The vine is cultivated largely in open gardens. The Isabella, the Delaware, Clinton, and other varieties of grapes attain to perfect size and excellent flavor in the open air; and the manufacture of native wines is now successfully prosecuted to a considerable extent.

Wild fruits abound in great variety throughout many Canadian districts. The wild vine (*Vitis vulpina*) is abundant everywhere, twining its tendrils around the trunks and over the branches of the forest trees, and yielding clusters of small grapes, inviting to cultivation. Among the other wild fruits may be mentioned plums, cherries, raspberries, brambles or blackberries, strawberries, whortleberries, blueberries, gooseberries, black and red currants, juniper berries, cranberries, hickory and hazel nuts, and walnuts. The raspberries ripen in such abundance that enormous quantities are annually preserved and sold both in the Provinces and the United States. The blueberry is also extensively sold; and the wild strawberry furnishes an agreeable dessert in many parts of the eastern provinces throughout the latter part of July and August.

Apples and pears are now largely cultivated. The island of Montreal has long been famous for its fruits; and the annual produce of the orchards of Ontario is exported to the States and to Europe. Vegetables for the table are also successfully cultivated in greater varieties than in England, and in such quantities that they are largely exported. The tomato flourishes and yields an abundant crop. Cauliflower, vegetable marrow, squash, French beans, pease, lettuce, spinach, celery, asparagus, rhubarb, and all the more common vegetables are grown in abundance in the older provinces. The climate of Manitoba, notwithstanding its exceptionally low temperature from December to March, gives promise of equally satisfactory results. Professor Bryce, after noting such examples of agricultural produce as that of one old settler who obtained 420 bushels of wheat from 11 acres, and another who by garden culture produced the enormous yield of 134 bushels per acre of oats, thus proceeds: "These are given both as proof of the capabilities of the country, and of the advantage of careful culture. The ordinary table vegetables are surprising in their growth, and reach a prodigious size. The writer has seen nothing in his previous experience equalling the vegetable production of the province; and the late lieutenant-governor, Hon. Mr. Archibald, after testing the matter in his own garden, gave the same as his experience."

The exports of fruit and vegetables, the growth and produce of the five eastern provinces of Canada, for the year 1889, included fruit to the value of \$1,627,818, and vegetables to the value of \$357,729. But while this produce of the finer fruits and vegetables for the table shows exports to the value of \$1,985,547 in a single year, and thus bears evidence to the character of the soil and climate, it conveys a very imperfect idea of the actual produce of Canadian orchards. Apples especially

are in constant use at the table. Throughout the southern portion of Ontario thousands of acres are planted with fruit-trees, yielding valuable crops of the finest quality, and forming an ever-increasing source of wealth to the farmer.

The flora of Canada naturally comes in order along with its agriculture and garden produce; but to deal with the subject effectually would require a botanical treatise on the whole flora of North America.

It will better accord with the practical aim of this article, to note that the honey-bee flourishes in all the provinces of Canada.

The forests of Canada abound in fine timber, adapted to almost every variety of useful or ornamental work, and furnishing one main element of wealth to the provinces. Foremost in point of utility are the white and red pine, annually exported in large quantities to the United States and to Europe. Three-fourths of the square and flatted timber produced in the Ottawa region in 1889 was of white pine. Cedar, red pine, and railway-ties chiefly made of tamarac, were the others which were produced in largest quantities. Pine trees of 100 feet high are not uncommon; and instances are not rare of trees greatly exceeding that height.

The value of the immense forests of Canada is becoming more apparent every year.

Canada is becoming every year more important as an agricultural country. It is exporting not only grain but also cattle to the English market; and when the rich prairie lands of the Northwest are brought more largely under cultivation its agricultural produce will probably rank foremost in value of that of any nation in the world. But at present the produce of the Canadian forests exceeds in value any other yield of the growth, produce, or manufacture of the Dominion.

It is erroneously supposed by many, who are unfamiliar with the character of the Canadian forest, that the work of the lumberman results in the clearing of the land. Only the finest full-grown trees are selected for the lumberman's ax, and it is calculated that the same district may be gone over by the lumberman every twelve or fifteen years. Hence if the destructive fires which from time to time do such immense injury can be guarded against, and the operations of the lumberman are carried on with due care, under proper oversight, there is no reason why the forests of Canada should not remain a permanent source of national wealth.

Looking to the native fauna of Canada in an economic point of view, it is abundantly evident that the animal life of its seas and rivers is one of its great and inexhaustible sources of wealth. Alike on the sea-coasts, in the estuaries, and throughout its great inland lakes and rivers, the most valuable fish abound; and on the Labrador coasts and those of Newfoundland the seal fisheries are another annual source of wealth. The sturgeon is caught in Canadian waters, frequently weighing from 80 to 100 lb.; the finest salmon abound both in the eastern rivers emptying into the Gulf of St. Lawrence, and in those of British Columbia; lake trout is caught in large quantities weighing from 10 to 40 lb.; and the smaller rivers and lakes teem with beautiful speckled trout, frequently weighing from 4 to 6 lb. The white fish and muskallonge are esteemed for their delicacy and richness of flavor; and the returns of the fisheries, as given in the separate accounts of the various provinces, show the relative abundance of cod, haddock, mackerel, herring, salmon, halibut, white fish, and other produce of the Canadian fisheries.

The returns for the year 1886 show that the values of the five kinds of fish (cod, lobsters, herring, mackerel, and salmon), of which the largest quantities are taken



in Canada, amount to twelve millions of dollars. This is exclusive of fish-oils, sealskins, and all other varieties of fish and fish product, which form a part of the natural wealth of Canada. It is also exclusive of the Newfoundland fisheries. The value for the year 1890 of the Canadian export of fish was \$8,461,906; the total yield being \$17,714,902.

British Columbia and Manitoba have only lately been brought within the provisions of the Fisheries Act; and the total yield of the fisheries of the former Province is found to be very large. Valuable oyster beds exist on the Pacific coast of the Dominion. The salmon fishery promises, if rightly protected and regulated, to prove a valuable branch of industry. During the year 1888, 6¾ million pounds of salmon were canned for export, and 4,541 barrels were salted. In the great lakes and rivers of Manitoba the whitefish are no less abundant, and they constitute an important source of supply of food in certain seasons of the year throughout the whole Northwest. The total value of the yield of the fisheries of the Dominion, for the year 1890, was estimated at little under eighteen million of dollars.

Canada has been esteemed from its earliest discovery for its valuable fur-bearing animals, and was prized chiefly on this account so long as it remained a dependency of France. In 1670 Charles II. granted the charter to the Hudson's Bay Company, whereby they acquired the exclusive right of trading with the Indians in the vast regions vaguely recognized as surrounding the great inlet from which the company took its name. In 1783 a rival company was established under the name of the North-West Company, which claimed that, as the Royal Charter of their rivals had not been confirmed by Parliament, all British subjects were free to engage in the fur trade of the North-West. The results of the jealousies and hostilities of the two companies played an important part in the early history of Canada, and in the first attempts at settlement on the Red River, which paved the way for the rise of the new province of Manitoba. After many bitter contentions, and after impeding each other's operations for years, the rival companies at length effected a junction in 1821; and the fur trade has since been successfully prosecuted under their joint action, till the acquisition by Canada of the north-west territory as a necessary step towards the prosecution of the plans of confederation, and the formation of new provinces throughout British America.

There still remains, however, not only a vast extent of unoccupied territory in which for many years to come the hunter and the trapper will find undisturbed sway, but the regions around the Hudson's Bay, and stretching westward to Alaska and northward to the pole, must ever remain a shelter for fur-bearing animals, and a resort of the hunter. All the furs collected for the great fur company are shipped to London:—in part from their factories of York Fort and Moose River, on the Hudson's Bay, which are visited by a ship from England every year, and in part from Montreal and the ports of the Dominion on the Pacific.

In the vicinity of Canadian clearings deer are still found in abundance, and venison is plentiful during winter in all the markets of Canada. But wherever the deer abound wolves are sure to follow; and wherever they occur sheep-farming is impossible, and their depredations on the farmer's stock make them an object of special dislike. In order to encourage their extermination a premium is paid by Government for the head or scalp of each wolf produced to a local magistrate, and it is not uncommon in new districts for the settler to pay his taxes in wolf scalps. By this means they rapidly disappear from the neighborhood of the

settlements. The bear is another mischievous native of the Canadian forests. The winter furs both of the bear and the wolf are prized for robes; and their value furnishes an additional stimulus to the extirpation of both wherever the country is settled. Beyond the settlements, in the remote recesses of the uncleared forest, the beaver still abounds. Foxes of diverse kinds (silver, grey, red, and black), raccoons, otters, fitches, martins, and minks are no less abundant. The musk rat is to be met with on all the Canadian rivers; and the red, black, and grey squirrels sport everywhere in the forest, and at times even invade the clearings and make free with the farmers' crops. In the more remote regions, now also being invaded by settlers, herds of buffalo are still met with; and beyond them are the moose, the wapiti, the reindeer, the white Arctic fox and the polar bear, whose haunts are safe from the invasion of the settler, however rapidly the Dominion may extend and carve out new provinces in the illimitable spaces of the North-West.

Canada is pre-eminently a country of yeoman farmers. The land is held in possession and tilled by the settler on his own account; and with every addition to the numbers of its industrious population fresh acres are recovered from the wilderness, and added to the productive resources and the wealth of the Dominion. The number of persons occupying land within the four provinces of Nova Scotia, New Brunswick, Quebec, and Ontario, according to the census of 1871 was in all 367,862. Of these there were 324,160 owners; 39,583 tenants, and only 2119 farm laborers or servants. Those facts alone suffice to illustrate the striking contrast between the condition of Canada and most of the countries of Europe. By patient industry and frugality it is in the power of every Canadian to become owner of a house, and proprietor of whatever amount of land he can turn to profitable account; while the character of the population resulting from this condition of things checks the accumulation of extensive landed estates in the hands of single proprietors. The majority of the farms are small, tilled by the proprietor with his own hands, with the help of his sons and occasional hired labor in the busy season of harvesting. But capital is also successfully applied to farming, and beautiful large stock farms are now entering into rivalry with those of the United States and even of England.

In 1842 the population of Upper Canada numbered 486,055, with 1,927,816 acres of land under cultivation. In 1852 the population had increased to 952,004, and the land under cultivation to 3,697,724 acres. According to the census of 1891 the total population of Ontario, as it is now called, numbered 2,112,989, with 16,161,676 acres of land in process of improvement.

Besides the grand staple of the cereal grains, the Canadian farmer derives large returns from his crops of hay, clover, and grass seeds, carrots, mangel wurzel, beans, hops, flax, hemp, and tobacco. In 1852 Upper Canada produced 764,476 lb. of tobacco, the greater portion of which was grown along the western shores of Lake Erie, and on the peninsula between that and Lake St. Clair, where the soil and climate specially favored its growth. At the same date Lower Canada produced 488,652 lb.; but in 1871 the returns for the province of Quebec alone amounted to 1,195,345 lb. of tobacco. Hops are cultivated with still greater success; and flax and hemp are additional sources of profit to the farmer. The value of the hops, flax, and flax seed exported during the year 1886 amounted to \$129,692.

The mineral resources of Canada, though of incalculable extent, have as yet been very partially developed. Quebec and Ontario are devoid of coal, though both have access, by convenient transport, to rich coal-fields

in adjoining provinces or states; but the maritime provinces, Manitoba, the northwest territories, and British Columbia are all rich in coal.

The war which commenced in 1812 between the United States and Britain severely checked the commerce of the St. Lawrence, which was greatly dependent upon the Americans. And, notwithstanding that Britain slightly relieved the import duties on wheat in favor of Canada in 1814, we find that the trade of the colony from 1810 to 1820 remained almost stationary. The aggregate tonnage which arrived at Quebec in 1820 (a more prosperous year, if shipping be taken as the criterion, than any of the preceding ten) amounted only to 9697 tons over that of 1810. In 1810, 26 vessels had been built in the colony, and only 7 were built in 1820.

According to the old system of colonial monopoly, the St. Lawrence was rigidly closed against the entrance of foreign vessels, nor was any Canadian vessel allowed to enter a foreign port. The prosperity of the colony during this period of its infancy was believed not to have been materially checked by these restrictions, as the mother country at all times afforded an outlet for its surplus produce. After the United States had achieved their independence, their vessels were excluded from the ports of the British colonies; and Canada, as a reward for its loyalty, received the exclusive privilege of supplying the West India Islands with timber and provisions.

In this manner, as the trade of Canada had been confined and shackled for the supposed benefit of the mother country, so now she was rewarded with compensating privileges to the direct injury of the sister colonies of the West Indies. The United States ports were the natural resorts of the West Indies for timber and provisions, their distance from these being about one-half less than the ports of the St. Lawrence. But the additional freight, which on such bulky articles constitutes a great proportion of the expense, was not only enhanced by this circuitous route, but the West Indies had to pay besides for transshipment upon what was supplied by the United States to Canada for the West Indian market. The West India planters were thus laid under contribution for the support of the Canadian shippers and farmers.

These regulations were, however, so far relaxed in favor of the West Indies in 1822, that the wheat and lumber of the United States were allowed to be imported directly on payment of certain duties; but at the same time duties were imposed upon agricultural produce entering the British American colonies as well as the West Indies.

The immediate result of this measure, so far as it affected Canada, was that one-half of the export trade of the St. Lawrence was at once destroyed. The simultaneous abundance of the English harvest, together with the restrictions then in force upon the importation of grain into Britain, even from her own colonies, forbade any exports thither, and thus seriously aggravated the depression of Canadian commerce, and afforded another illustration of the ruinous policy of bolstering up one class by privileges and exemptions, and shackling another by restrictions and duties.

In 1825 Britain admitted Canadian flour and wheat into her ports at a fixed duty of 5s. sterling per quarter. Meanwhile a fresh trouble had already arisen to try the vexed fortunes of Canada. Previous to 1822, American exports had to a considerable extent sought the route of the St. Lawrence, as if they had been of Canadian origin, contributing very materially, of course, to the trade of the colony. But the opening of the Erie and Champlain canals in the United States, in 1825, drew off into a different channel those American exports which had formerly sought the Atlantic by way of

Quebec, and the trade of the St. Lawrence was thus seriously injured.

In 1826, however, the prospects again appeared to be brightening. The Americans were allowed, after four years of exclusion, to export timber and ashes for the British market into Canada free of duty. The duty upon Canadian flour for the West India market was also reduced.

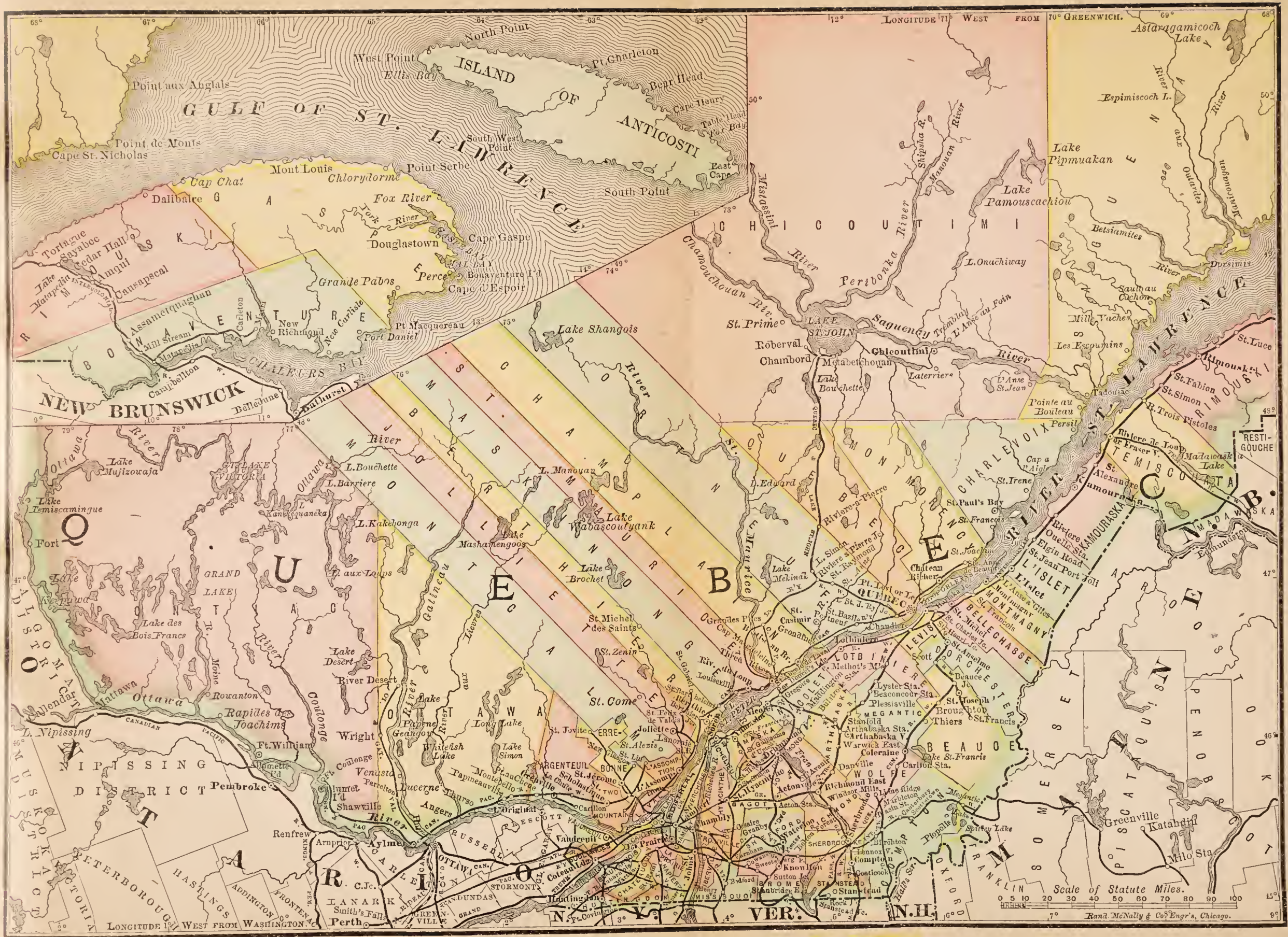
The trade of the colony likewise profited by the disputes between Britain and the United States, which led to the interdiction of the American export trade to the West Indies. This was reduced from £500,000 in 1826 to less than £500 in 1830. While the results were such to the United States, we find the trade of the St. Lawrence in 1830 not only fairly recovered from the effects of the Imperial Acts of 1822, but far surpassing its position at any former period. The arrivals at Quebec in 1830 were 967 vessels, having a tonnage of 238,153 tons.

In 1831 the trade of the colony was still further favored by the action of the Home Government. The forest and agricultural products of the United States were admitted into Canada free of duty, and could be exported by the St. Lawrence, as Canadian produce, to all countries except the United Kingdom. A differential duty was also at the same time imposed upon foreign timber entering the West Indian and South American possessions, greatly to the benefit of the colony, which also profited by the scarcity of food existing in Britain at this time. The arrivals at Quebec during this favored and prosperous year, were 1016 vessels, with a tonnage of 261,218 tons; and the exports of flour and wheat by the St. Lawrence were about 400,000 barrels, chiefly to Britain.

Between 1831 and 1836 we find a complete reversal of the order of trade between the colony and the mother country. The crops in England during that period being unusually abundant, and a scarcity of bread-stuffs existing in the United States, wheat was, in 1833, shipped from Britain to Quebec. A supply also came from Archangel. These imports from Europe to the St. Lawrence amounted in 1835 and 1836 to about 800,000 bushels. The relaxation by the mother country of her protective policy in 1842 was viewed with alarm by the colonists as fraught with disastrous consequences to their interests. Up to 1842 Baltic timber had paid an English import duty of 55s. per load, while Canadian timber entered England upon payment of 10s. per load. The duty on foreign timber was now reduced to 30s. and Canadian to 1s. per load. At the same time the free importation of United States flour into the colony was stopped, and the West Indies were allowed, on the payment of a duty of 2s. per barrel, to import their flour direct from the Americans.

These serious blows to the trade of the St. Lawrence fell upon the colony at the period of a commercial crisis, and were therefore felt more severely. The number of vessels that entered the St. Lawrence in 1842, from the sea, was 377 less than during the previous year.

In 1843, Canada was allowed to import American wheat under a comparatively nominal duty, and to export it through the St. Lawrence as native produce to the British market. This measure, which may be viewed as having been the first indirect blow at the English corn-laws, amounted to a virtual premium of about 6s. sterling per quarter upon American exports to Britain through the St. Lawrence. The British ports were thus at once in a great measure thrown open to all the great wheat-growing countries of North America. Canadian exports were rapidly swelled in consequence; and in 1846 half a million of barrels, and as many bushels of wheat and flour, were shipped by the St. Lawrence.



The timber trade of the colony, which was also seriously threatened in 1842 by the large reduction of the duty on Baltic timber imported into England, witnessed likewise in 1845 and 1846, not merely a revival, but a very material increase. The number of vessels that entered the St. Lawrence rose to 1699 during each of these years, with an aggregate burden of over 620,000 tons, — this being a much larger amount of shipping than had ever in any previous year entered the St. Lawrence.

The history of Canadian trade enters upon a new stage from 1846, when the commercial policy of England at length relaxed the old restrictive navigation laws in reference to her colonial possessions. One of the most practical evidences of its beneficial influence on Canadian trade is shown in the increase of its traffic with the United States, at the very time that its trade relations with the mother country were being annually augmented in a corresponding ratio. From 1821 to 1832, the aggregate annual traffic between the United States and Canada averaged no more than \$3,257,153. From 1833 to 1845 the average increased, with the growing population, industry, and wealth of both countries, to \$6,313,780 per annum. But under the influence of the more liberal policy inaugurated by Great Britain in 1846, the traffic rose between that year and 1853 so rapidly that its annual average amounted to \$14,230,763.

But the concessions made by the mother country in favor of the timber and corn trade of Canada were still only partial. The exportation of colonial produce from the St. Lawrence could only be carried on in British vessels; and thus there grew up a class of vessels specially appropriated to this trade, which made only two voyages in the year to Quebec or Montreal; and these having a monopoly of the whole exports of the St. Lawrence at privileged rates, the colony was virtually subjected to a heavy tax both on its exports and imports. Tea, coffee, sugar, and all the manufactured articles still required to be obtained from abroad were thus only obtainable through English ships; and hence the Canadian merchant was greatly restricted in the choice of the best and cheapest market. In return, however, the colonists had certain privileges accorded to them, foremost amongst which were those already referred to in connection with the import of wheat from the United States, and its export from the St. Lawrence as native produce,—the Canadian merchants having an advantage thereby over their competitors in New York and other American ports.

The abolition of the British corn laws deprived Canada of the privileges thus accorded to her in the export of bread-stuffs, and seemed to threaten the trade of the St. Lawrence with grievous discouragement at the very time when the transactions of the colony with the United States were in a great measure interdicted by a hostile tariff. The changed and more enlightened views, however, which entered into imperial legislation materially assisted the growing energies and intelligence of the colonists. The Imperial Government formally abandoned in 1847 all control over the customs of the colony, which immediately set itself to the task of regulating its own trade. One of the first measures of the colonial legislature was to abolish in a great degree the differential and prohibitory duties on colonial imports along the United States frontier; and the Americans upon the other side of the St. Lawrence were by this measure placed, as regards matters of trade, upon an equal footing with England. The beneficial effects of this measure showed itself at once in increased commercial activity and prosperity over the whole of Canada.

On the 1st of January 1850, England completed her free trade measures by relieving the colonies from the injurious effects of the British navigation laws. The

value of the more enlightened views which thus entered into both imperial and colonial legislation has since been most satisfactorily tested in the growing wealth and prosperity which have attended the progress of the colony. The same year is memorable for other events affecting Canadian progress. It was in 1850 that gold was first discovered in British Columbia, and coal at Nanaimo, on Vancouver Island; and so the steps were accelerated which led to the organization of the first province of the Dominion on the Pacific. The same year was marked by the organization of the opposition to ecclesiastical endowments, as well as to other exclusive rights and privileges, which resulted in 1854 in the final settlement of the vexed questions of the clergy reserves and seigniorial tenures in Upper and Lower Canada. The Grand Trunk Railway, which had been commenced in 1847, was now hastening to completion. Nova Scotia had already its first railway; the important local line connecting the Georgian Bay with Toronto, was developing the resources of Upper Canada; and in the same year, 1854, the Great Western Railway was commenced. By this line Toronto is not only placed in direct communication with Detroit, Chicago, and the whole Western United States; but by the extension of the line from Hamilton to the vicinity of the Niagara Falls, and the construction there of a suspension bridge, on a grand scale, for railway as well as ordinary traffic, the Great Western (now Grand Trunk) has become an important link in the main lines of transit from Boston and New York to the Western States. Since then the building of railways and the development of railway traffic have been energetically prosecuted. The Intercolonial Railway has been completed, as a material bond of union between the older provinces of Canada and the maritime provinces, and a route through Canadian territory, at all seasons, to the seaboard. This has been followed by the more comprehensive scheme of a Canadian Pacific Railway, which is now completed, extending from Quebec to the Gulf of Georgia in British Columbia. The mileage of the railways within the Dominion, completed and in operation up to June 30, 1890, was 13,256 miles.

So long as Canada consisted of the two provinces of Upper and Lower Canada, even when united for legislative purposes they retained their diverse laws and distinct judicial systems, while the Privy Council of Great Britain constituted the final court of appeal for both. In the province of Quebec the old French law, which was introduced under Louis XIV., is still the basis of the law of property. There the tenure of property remained strictly feudal, until the settlement of the claims of the seigniories by the Act of 1854 brought the old system to an end. But before that was effected new townships had been surveyed, and land disposed of to settlers to be held in free and common socage. The commercial law is regulated partly by the old French code, but modified by the English customs, and by later Canadian legislation. The criminal laws of England, and the right of trial by jury, were introduced by 14th Geo. III. c. 83. Since then all additions to the criminal law, or modifications of the statutes, have depended on the Acts of the colonial legislature. The religion, laws, language, and customs of the French population were all guaranteed to them at the time of the cession of Canada to England; and the rights and privileges pertaining to the Roman Catholic Church, among a population regarding its creed as their national religion, help to perpetuate essential differences, by maintaining what is still practically an established if not a state church.

By the constitution of the Dominion, as embodied in the British North America Act of 1867, the criminal

law, with the establishment, maintenance, and management of penitentiaries; all laws relating to bankruptcy, and solvency, marriage and divorce, naturalization, aliens, Indians, and Indian reserves; and generally, all subjects not expressly assigned to the provincial legislatures, pertain to the Dominion parliament. The judges in all the provinces are appointed by the general Government, and the pardoning power is vested nominally in the governor-general, while his authority in other respects is exercised under the advice of his privy council, or ministers for the time being. The powers entrusted to the local legislatures include generally all strictly local legislation not affecting in any way the rights of other provinces. The judges by whom the laws are administered must in the case of Quebec be selected from the bar of that province; and the judges of the superior courts in all the provinces hold office during good behavior, and are removable by the governor-general on address of both houses of Parliament.

The rights and privileges of each province being thus secured by its own parliament and courts of law, the provisions of the Act of Confederation have been completed by the establishment of a Supreme Court and Court of Exchequer at Ottawa, consisting of a chief justice and five other judges, two of whom, including the chief justice, have been selected from the bench of Ontario, two from the bench and bar of Quebec, and one each from the bench or bar of Nova Scotia and New Brunswick. The court thus constituted is the supreme court of appeal from all the courts of law in the various provinces, though litigants, as a final resort, may appeal from the Supreme Court at Ottawa to the Privy Council in England, and, if money is of little object, have their wrongs righted.

Almost from the first organization of Upper Canada as a separate province, steps were taken for providing means for the establishment of efficient schools and colleges. So early as 1797 a grant of 500,000 acres of the unoccupied lands of the province was set apart for the purpose of establishing and endowing a university and four royal foundation grammar schools. Of this one-half was appropriated as a university endowment, and one-fourth of the remainder was granted to Upper Canada College, which assumed in Canada the functions of the great public schools of England, and still continues to hold its place at the head of the grammar or high schools of the province.

In the earlier years of Upper Canada, the "Clergy Reserves," set apart originally for the support of a "Protestant" clergy, were appropriated exclusively by the ministers of the Church of England. Upper Canada became an archdeaconry of the diocese of Quebec; and the venerable Archdeacon Strachan, whose first labors in Canada had been as master of the Cornwall Grammar School, became the leader both in ecclesiastical and educational matters, and ultimately a privy councillor, member of the legislative council, and bishop of the diocese of Toronto. He was a man of great energy and decision of character; and under his guidance the lands set apart for the endowment of a provincial university were appropriated to the purpose, and a royal charter was granted by George IV. establishing at Toronto, or York, as it was then called, "one college, with the style and privileges of an university, for the education and instruction of youth and students in arts and faculties," under the name of King's College. The bishop of the diocese became, *ex officio*, visitor; and when at length the college was organized, it had its divinity faculty, and its professor of divinity, along with its daily religious services according to the use of the Church of England. The special denomina-

tional character thus given to the provincial university excited opposition, and led to the establishment of Queen's College, at Kingston, under the control of the Church of Scotland, and of Victoria College, Cobourg, under the Wesleyan Methodist Church. To those have since been added Albert College, Belleville, under the management of the Episcopal Methodist Church; and Ottawa College, and Regiopolis College, Kingston, in connection with the Church of Rome. All of those possess university powers, either by Royal Charter, or by Acts of the provincial legislature. By subsequent enactments the constitution of King's College has been greatly modified. Its divinity faculty has been abolished, all denominational restrictions have been removed, and its functions divided between a university proper, modelled after the university of London, with a senate, on which devolves the fixing of the requirements for degrees, the appointment of examiners, and all other university work, as distinct from teaching. The latter is under the conduct and regulation of the professors, who constitute the council of University College, and undertake all the duties of preparing the under-graduates for the university examinations in arts and science. Other colleges and schools, both in the faculty of arts and in those of law and medicine, are affiliated to the university, and part of the funds at the command of the senate is appropriated for scholarships, to be competed for at the examinations in the different faculties. On the passing of the act of 1853, by which the divinity faculty and professorship were abolished, a royal charter was obtained for the establishment of Trinity College, in connection with the Church of England, with all the powers of a university.

The system of public instruction for Ontario has hitherto been carried out under the direction of a permanent officer, styled the Chief Superintendent of Education, with the advice of the Council of Public Instruction, originally nominated by the Crown, but latterly including representatives of the universities, of the school inspectors, and the masters of high and public schools. But by a recent Act of the Ontario Legislature, the functions of the Council of Public Instruction have been transferred to a committee of the executive council; and the functions and duties of the chief superintendent are vested in one of its members, who is designated the Minister of Education. The introduction of the representative element into the Council of Public Instruction was immediately followed by a conflict between the body and the officers of the department in reference to various proposed modifications; and the changes now introduced aim at bringing the administration of the system of education more directly under the control of the people through their representatives.

There are two normal schools for the training of teachers, one at Toronto and one at Ottawa; supplemented by (2) provincial model schools, (58) county model schools, and (5) training institutes. The secondary schools are divided into (1) collegiate institutes and (2) high schools for teaching classical and English subjects, with mathematics and science. Of those there were 120 in all, including 31 collegiate institutes, in 1889, with an average attendance of 10,798 pupils.

The primary schools for junior pupils are styled public schools. The school population, including those between 5 and 21 years of age, was returned in 1889 as numbering 616,028. At the same date there were 5,677 schools in full operation, with an attendance of 468,025 pupils. In all the above schools every feature of a denominational character is excluded. The collegiate institutes and high schools are under the control of trustees appointed by the county municipalities, and their maintenance depends on their share of the legislative

grant, supplemented by the annual assessments of the city, town, and county municipalities. The public schools are in like manner supported by legislative grants, and by assessment levied on the requisition of the school trustees in each school section. The essential feature of the whole system is that the people, directly or through their representatives, have the entire control of the schools, including the selection of the teachers, the fixing of their salaries, and the management of the school funds.

The one exceptional feature is the Roman Catholic separate schools. Any Roman Catholic can require his school-tax to be paid for the maintenance of the separate schools of his own church; and with this fund, supplemented from other sources, there were, in 1889, 243 separate schools in Ontario, with an average attendance of 18,153 pupils, or of 32,790 on the school rolls. According to the proportion of the Roman Catholic population, this is less than a third of their children of school age. A large proportion of the remainder attend the public schools. Masters of high schools are required to be graduates of universities, and to have had previous experience in teaching. Teachers of public schools must hold a normal school or other recognized certificate of qualification.

The principal features of the system of education thus brought into efficient operation have been modeled on those of the New England States and on the normal schools of the Irish National Board of Education. The systems of the other Canadian provinces, with the exception of Quebec, have been framed on this model. In the last-named province, where the great mass of the people are Roman Catholics, the education is in the hands of the clergy, and is avowedly carried on in connection with the Church of Rome. But dissentient or Protestant schools are recognized as a part of the public school system; and the permanency of this state of things is guaranteed by a clause in the Act of Confederation, which excludes it from the interference of the general legislature.

STATISTICAL TABLES—CANADA.

Gross debt of Dominion, June 30, 1890.....	\$286,112,295.00
Gross debt of Confederation, 1867.....	93,046,051.00
Gross debt per head, 1867.....	28.74
Gross debt per head, 1890.....	55.18
Gross amount of taxation, June 30, 1890.....	31,587,072.00
Gross amount of taxation in 1868.....	11,701,681.00
Gross taxation per head in 1868.....	3.47
Gross taxation per head in 1890.....	6.09
Revenue, June 30, 1890.....	39,879,925.00
Revenue in 1868.....	13,687,928.00
Expenditure, June 30, 1890.....	35,994,031.00
Expenditure in 1868.....	13,486,092.00
Charges for debt and provincial subsidies, 1890.....	15,679,409.00
The same for 1868.....	7,969,990.00
Subsidies paid to provinces, 1890.....	3,904,992.00
Interest on public debt, 1890.....	9,656,841.00
Cost of Dominion legislation and civil government, 1890.....	2,241,034.00
Expended on public works and buildings, 1890.....	1,972,501.00
Expended on railways, 1890.....	3,896,954.00
Expended on militia and defence, 1890.....	1,287,014.00
Total expenditure on capital account since confederation, 1867.....	184,881,076.00
Of this, there were debts allowed to Provinces.....	30,743,392.00
Canadian Pacific railway.....	61,940,581.00
Intercolonial and connected railroads.....	42,727,034.00
Spent on canal construction.....	33,868,296.00
Value of imports, 1890.....	121,858,241.00
Value of exports, 1890.....	96,749,149.00
Duty collected 1890.....	24,014,908.00

Area and Population of the Dominion of Canada and Newfoundland, etc., 1891.

PROVINCES, DISTRICTS, TERRITORIES.	Square Miles.	Pop'lat'n Census 1891.
Manitoba, Province.....	74,000	154,442
Saskatchewan, District.....	108,400	99,722
Assiniboia, do.	90,200	
Northwest Territories.....	906,000	
Athabasca, District.....	104,500	
Alberta, do.	106,100	92,767
British Columbia, Province.....	383,300	
Ontario do.	222,000	2,112,989
New Brunswick do.	28,200	321,290
Nova Scotia do.	20,600	450,523
Prince Edward Island, do.	2,000	109,088
Quebec do.	228,900	1,488,586
Territory east of Hudson's Bay.....	358,000	Unkn'wn
Islands in Arctic Ocean and Hudson's Bay.....	300,000	Do.
Keewatin, District.....	282,000	Do.
Territory east of Keewatin and south of Hudson's Bay.....	196,800	Do.
Great Lakes and River St. Lawrence east Long. 60°, and portions within United States, not included in above areas.....	47,400	
Totals.....	3,458,400	4,829,411
Labrador.....	40,000	4,600
Newfoundland.....	42,734	187,411
Do. French Shore, from Cape Ray to Cape St. John, say.....		10,000
		5,037,822

Statement of Expenditure on Construction and Improvement of the Public Works of Canada, from their commencement to June 30, 1889.

NAME OF WORK.	Grand Total Expenditure to June 30, 1889.
Railways.....	\$137,376,258.22
Canals.....	59,663,049.50
Total—Railways and Canals.....	\$197,039,307.72
Public Buildings.....	\$18,712,329.64
Harbors and Breakwaters.....	11,693,421.16
Improvements of Rivers.....	1,936,460.99
Dredges.....	671,252.17
Slides and Booms.....	1,843,570.37
Roads and Bridges.....	1,829,690.35
Telegraph Lines.....	708,372.63
Lighthouses.....	3,111,905.65
Dominion Steamers.....	897,489.45
Monuments.....	15,405.92
Ottawa, Major's Hill Park.....	12,511.58
Do. Cartier Square.....	2,597.38
Total—Public Works.....	\$41,435,006.33
Grand Total.....	\$238,474,314.05

CANAL. Navigable canals may perhaps be most conveniently treated under two classes, *Barge* or *Boat* Canals, now in many cases almost superseded by railways and *Ship* Canals, which, judging from the stupendous works of this class recently executed and now in contemplation, seem as yet far from having exhausted the important aids they are destined to afford to navigation.

From the writings of Herodotus, Aristotle, Pliny, and other ancient historians, we learn that canals existed in Egypt before the Christian era; and there is reason to believe that at the same early period artificial inland navigation also existed in China. Almost nothing, however, save their existence has been recorded with reference to these very early works; but soon after the commencement of the Christian era canals were introduced and gradually extended throughout Europe, particularly in Greece, Italy, Spain, Russia, Sweden, Holland, and France.

In speaking, however, of the earliest of these works, it is not to be supposed that they resembled the modern canals now constructed in our own and other countries. Early as inland navigation was introduced, it was not until the invention of canal-locks, by which boats could be transferred from one level to another, that inland navigation became generally applicable and useful, and it has been truly remarked "that to us, living in an age of steam-engines and daguerreotypes, it might appear strange that an invention so simple in itself as the canal-lock, and founded on properties of fluids little recondite, should have escaped the acuteness of Egypt, Greece, and Rome." Not only, however, had the invention escaped the notice of the ancients, but what is more striking, the several gradations made towards the attainment of that simple but valuable improvement appear to have been so gradual that, like many discoveries of importance, great doubts exist as to the *person* and even the *nation* that was the first to introduce canal-locks. One class of writers attributes the discovery to the Dutch, and Messrs. Telford and Nimmo, who wrote the article "Inland Navigation" in Brewster's *Edinburgh Encyclopædia*, adopt the conclusion that locks were used in Holland nearly a century before their application in Italy; while, on the other hand, the invention has been strongly and not unreasonably claimed for engineers of the Italian school, and in particular for Leonardo da Vinci, the celebrated engineer and painter. Without, however, entering into a discussion of this question, which it is now perhaps impossible to solve, we may safely state that during the 14th century the introduction of locks, whether of Dutch or Italian origin, gave a new character to inland navigation, and laid the basis of its rapid and successful extension. And here it may be proper to remark, that the early canals of China and Egypt, although destitute of locks, do not appear to have been on that account formed on a uniformly level line, unadapted to varying heights. It is very doubtful, indeed, if the use of locks has even yet been introduced into China, intersected as it is by many canals of great antiquity and extent, the imperial canal being about 1000 miles in length. "This canal appears to have been completed in 1289, and is said to extend for a distance of forty days' navigation, and is provided with many sluices, and when vessels arrive at these sluices they are hoisted by means of machinery, whatever be their size, and let down on the other side into the water." Nevertheless the invention of locks was, as has been stated, a most important step in the history of canals; and that mode of surmounting elevations may be said to be almost universally adopted throughout Europe and America. Inclined planes and perpendicular lifts have, it is true, been employed in those countries, as will be noticed hereafter; but the instances of their application are undoubtedly rare.

But without tracing the gradual introduction of canals from country to country, we remark at once that we find the French at the end of the 17th century, in the reign of Louis XIV., forming the Languedoc Canal, designed by Riquet, between the Bay of Biscay and the Mediterranean, a gigantic work, which was finished in 1681. It is 148 miles in length, and the summit level is 600 feet above the sea, while the works on its line embrace upwards of one hundred locks and fifty aqueducts, an undertaking which is a lasting monument of the skill and enterprise of its projectors; and with this work as a model it seems strange that Britain should not, till nearly a century after its execution, have been engaged in vigorously following so laudable an example. This seems the more extraordinary, as the Romans in early times had executed works in England, which, whatever might have been their original use,

whether for the purposes of navigation or drainage, were ultimately, and that even at an early period, converted into navigable canals. Of these works we particularly specify the *Caer Dyke* and *Foss Dyke* cuts in Lincolnshire, which are by general consent admitted to have been of Roman origin. The former extends from Peterborough to the River Witham near the city of Lincoln, a distance of about 40 miles; and the latter extends from Lincoln to the River Trent, near Torksey, a distance of 11 miles.

Of the *Caer Dyke* the name only now remains; but the *Foss Dyke*, though of Roman origin, still exists, and as it is the oldest British canal, the reader may be interested to learn the following facts as to its history. Camden in his *Britannia* states that the *Foss Dyke* was a cut originally made by the Romans, probably for water supply or drainage, and that it was deepened and rendered in some measure navigable in the year 1121 by Henry I. In 1762 it was reported on by Smeaton and Grundy, who found the depth at that time to be about 2 feet 8 inches. They, however, discouraged the idea of deepening by excavation. They say they found "the bottom to be either a rotten peat earth, or else a running sand," and that though the deepening of the navigation is in "nature possible," yet it "cannot be effected without removing one of the banks in order to widen the same," which would not only turn out expensive, but would "occasion much loss of time and profit to the proprietor while the work is executing." Nothing followed on this report; but in 1782 Smeaton was again called in, and deepened the navigation to 3 feet 6 inches, not, however, by widening the canal or dredging, but by raising the water-level 10 inches. From that period nothing more was done to enlarge the water-way, or adapt it to increased traffic. Meantime the adjoining Witham navigation having been improved, the defects of old *Foss* became more apparent, and in 1838 Mr. Vignoles was consulted, and made an elaborate report on alternative schemes for increasing the depth to 4 and 6 feet; nothing, however, was done till 1840, when Messrs. Stevenson were employed to design works for assimilating the *Foss Dyke* as far as practicable, both as regards width and depth, to the navigable channel of the Witham. The depth was found to be 3 feet 10 inches, and its breadth in many places was insufficient to admit of two boats passing each other, and for their convenience occasional passing places had been provided. It was resolved to increase the dimensions of the canal, and to repair the whole work. Accordingly it was widened to the *minimum* breadth of 45 feet, and deepened to the extent of 6 feet throughout. The entrance lock communicating with the River Trent at Torksey was renewed, and a pumping engine was erected for supplying water from the Trent during dry seasons, and thus that ancient canal, which is quoted by Telford and Nimmo as "the oldest artificial canal in Britain," was restored to a state of perfect efficiency, at a cost of £40,000, and now forms an important connecting link between the Trent and Witham navigations.

Notwithstanding the existence of this early work, however, and of some others in the country, particularly the *Sankey Brook* navigation, opened in 1760, it cannot be doubted that the formation of the *Bridgewater Canal* in Lancashire, the Act for which it was obtained in 1759, was the commencement of British Barge Canal Navigation, of which we propose first to treat, and that Francis, duke of Bridgewater, and Brindley the engineer, who were its projectors, were the first to give a practical impulse to a class of works which, under the guidance mainly of Smeaton, Watt, Jessop, Nimmo, Rennie, and Telford, has been very generally adopted throughout the country, and has

undoubtedly been of vast importance in promoting its commercial prosperity.

It must be obvious, that to construct a navigable channel through a country varying in level, and affording, perhaps, no great facilities for obtaining a supply of water, infers high engineering skill. Vast reservoirs must in some cases be formed for storing the water necessary to supply, during dry seasons, the loss by lockage, leakage and evaporation. Feeders must be made to lead this water to the canal, hills must be pierced by tunnels, valleys must be crossed on lofty embankments, or spanned by spacious aqueducts, and, above all, the whole must be conceived and laid out with scrupulous regard to the all-important object of securing the works against injury from an overflow of water during floods, and a consequent inundation of the surrounding country. Moreover, the necessity of laying out the canal in level stretches, and surmounting elevations by means of locks or inclined planes, occurring at intervals, often occasions much difficulty and greatly restricts the resources of the engineer. Taking, then, all these circumstances into consideration, and bearing in mind that canals were the pioneers of railways, we think it may safely be affirmed that the canal engineers of former days had more serious *physical* difficulties to contend with than are experienced in carrying out the railways of modern times, if we except such works as the Britannia Bridge, the high-level bridge of Newcastle, the Boxhill tunnel, and some other kindred works. But, indeed, their *mechanical* difficulties were also greater, for the introduction of steam, and its wide-spread application to all engineering operations, afford facilities to the engineers of the present day which Smeaton at the Eddystone, Stevenson at the Bell Rock, and Rennie and Telford in their early navigation works, did not enjoy. The distinguished merits of the engineers who practiced in the former and at the commencement of the present century, cannot indeed be over-estimated, and had it been within the scope of this article it would have been profitable and instructive to have described in detail some of the grand aqueducts and other works on the lines of our canals.

A canal cannot be properly worked without a supply of water calculated to last over the driest season of the year, and in that respect, except as to the quality of the water, demands all the care requisite in investigating the sources of water for supplying towns. If there be no *natural* lake in the district, available for supply and storage, the engineer must select situations suitable for artificial reservoirs, and the conditions to be attended to in selecting their positions are the same as those for water works.

Where the canal communicates with the sea or a tidal river, and where the natural supply is small, as at the Foss Dyke already referred to, the water is raised by pumping engines. It will readily be seen, therefore, how important it is to reduce to a *minimum* the loss of water due to leakage from deficient workmanship, as well as to lockage of the traffic through the canal, and (while on this subject) it may be stated that the *up* consumes a greater amount of water than the *down* traffic, for an *ascending* boat on entering a lock displaces a volume of water equal to its submerged capacity; the water so displaced flows into the lower reach of the canal and the lower gates are closed, the boat is then raised, and on passing into the higher reach of the canal its displacement lost on entering is supplied by water withdrawn from the higher reach. A *descending* boat, on the other hand, on entering a lock likewise displaces a volume of water equal to its submerged capacity, but the water in this case flows into the higher reach, where it is retained when the gates are closed.

In laying out a line of canal the engineer is more restricted than in forming the route of a road or railway, where gradients can be introduced to suit the undulating surface of the country. A canal, on the contrary, must follow rigidly the bases of hills and windings of valleys, to preserve a uniform level, accommodation being made for the road traffic by erecting suitable "fixed" and "movable" bridges. It is important, as already stated, to lay out the work in long level reaches, and to overcome elevations *in cumulo* by groups of locks at places where it can be most advantageously done. This leads to a saving of attendance and expense in working the canal, and causes fewer stoppages to the traffic. But to prevent waste of water the locks must be placed sufficiently far apart, say 100 yards, or an intervening pond or increased width of canal must be formed, so that a descending boat does not let off more water than the area below will receive without raising its surface so much as to lose the surplus water over the waste weirs. The mode of overcoming the difference of level between the various level reaches is, with few exceptions, by locks, which generally have a lift of 8 or 10 feet, though in some cases it is somewhat greater.

An essential adjunct to a canal is a sufficient number of waste-weirs to discharge surplus water accumulating during floods, which, if not provided with an exit, may overflow the tow-path, and cause a breach in the banks, stoppage of the traffic and damage to adjoining lands. The number and positions of these waste-weirs must depend on the nature of the country through which the canal passes.

Stop-gates are necessary at short intervals of a few miles for the purpose of dividing the canal into isolated reaches, so that in the event of a breach the gates may be shut, and the discharge of water confined to the small reach intercepted between two of them, instead of extending throughout the whole line of canal.

For the purpose of draining off the water to admit of repairs after the stop-gates have been closed, it is proper to introduce, at convenient situations, a series of exits called "offlets," which are pipes placed at the level of the bottom of the canal, and fitted with valves which can be opened when required. These offlets are generally formed at aqueducts or bridges crossing rivers, where the contents of the canal can be run off into the bed of the stream, the stop-gates on both sides being closed so as to isolate the part of the canal from which the water is withdrawn.

In executing the work, provision must be made for the proper drainage of the tow-path, which should be made highest at the side next the canal, and sloped with a gentle inclination towards the outside.

The preservation of the banks at the water-line is also a matter of importance. "Pitching" with stones and "facing" with brushwood are employed, and in the author's experience the latter, if well executed, forms an economical and effectual protection.

The employment of steam for towing has been found very advantageous. The vessels rub less against the banks, the power being right ahead, and not on one side as with horses. The wear on the ropes used in tracking is reduced, the speed is increased, and vessels can be moved along the canal in weather which would have prevented horses doing the work. With a strong wind athwart the canal vessels cannot be tracked *in train*; they must then be taken singly, or at most two at a time. When vessels are towed in train, as a rule the largest and heaviest draughted are placed first, and the hawser leading from the first vessel to the tug is taken from each side of the bow. With this arrangement, and a skilful management of the tug, the vessels can be kept *fairly* in the line of the canal.

But though all efforts to improve barge-canals can never bring them to compete with railways in the quick conveyance of passengers, it is surprising to find in how many places they still command an enormous traffic in goods and minerals, and thus act as a valuable relief to overburdened railways. This is especially the case in the manufacturing districts of England, where the Birmingham Grand Junction and other canals seem to carry on as brisk a trade as they did in days gone by when they had no competitors but the stage coach and the carrier's van.

These remarks, however, as to railway competition do not apply to ship-canals, which, undisturbed by competing schemes, retain all the monopoly they ever possessed; and indeed, in the recent construction of the Suez and New Amsterdam canals, they had acquired an importance before unclaimed for works of that class — an importance which entitles them to the highest consideration in any engineering treatise; for, apart from their structural interest to the engineer, their usefulness in affording a short and sheltered passage for sea-borne vessels has long been acknowledged, and can hardly be over-estimated.

The Languedoc Canal already mentioned, by a short passage of 148 miles, saves a sea voyage of upwards of 2000 miles through the Straits of Gibraltar. By the Forth and Clyde Canal, sea-borne vessels, not exceeding 8½ feet draught of water, can pass from opposite coasts of Scotland, through the heart of the country, by 35 miles of inland navigation, and avoid the dangers of the Pentland Firth; the Crinin Canal substitutes a short inland route of 9 miles for a sea voyage round the Mull of Kintyre of about 70 miles; and the last great canal between Suez and Alexandria saves vessels a tedious voyage of 3750 miles on their route to India.

To most of the early ship canals that have been executed, the principles of construction already stated are generally applicable — the depth of water and dimensions of the locks and all other works being increased to suit the larger size of craft which use them, and therefore further notice of such detail is not required. But having still to illustrate the larger class of works, we proceed to describe some of the largest of the ship-canals already constructed and projected, and in doing so, we shall consider ship-canals under the following three classes:

First, Canals which, on their route from sea to sea, traverse high districts, surmounting the elevation by locks supplied by natural lakes or artificial reservoirs, such as the Languedoc in France, or the Caledonian Canal in Scotland;

Second, Canals in low-lying districts, which are carried on a uniform water-level from end to end, and are defended against the inroads of the sea at high water by double-acting locks, which also retain the canal water at low tide, such as the canals of Holland and other low countries;

Third, Canals, of which the Suez is the only example yet made, without locks at either end, and communicating freely with the sea, from which it derives its water-supply.

The Caledonian Canal in Scotland is as good a specimen of works of the *first* class as can be selected.

The canals of Holland are specimens of the *second* class of works to which reference has been made, and of these a very remarkable one is the North Holland Canal, completed in 1825.

Of the *third* class of works there is, as yet, only a single example in the Suez Canal, one of the most remarkable engineering works of modern times; but though it is called a canal, it bears little resemblance to the works we have mentioned under that name, for it has neither locks, gates, reservoirs, or pumping-engines,

nor has it, indeed, anything in common with canals, except that it affords a short route for sea-borne ships. It is in fact, correctly speaking, an artificial strait or arm of the sea, connecting the Mediterranean and the Red Sea, from both of which it derives its water-supply; and the fact that the two seas are nearly on the same level, and the rise of tide very small, allowed this construction to be adopted.

The idea of forming this connecting link between sea and sea is of very ancient origin, and its author is unknown. It is understood, however, that a water communication for small vessels between the two seas was formed as early as 600 years before the Christian era, and existed for a period of about 1,400 years, after which it was allowed to fall into disuse.

The idea of restoring this ancient communication on a scale suited to modern times, is understood to be due to Napoleon I., who, about the close of the last century, obtained a report from M. Lepere, a French engineer, which, however, was followed by no result, and it remained for M. de Lesseps, in the present day, to realize what were thought the dreams of commercial speculators, by carrying out the long-desired passage between the two seas. But the postponement of the scheme unquestionably favored the chances of its commercial success, for had the canal been completed even a few years earlier, comparatively few vessels would have been found to take advantage of it. Masters of sailing vessels would not, from choice, have navigated the Mediterranean, and encountered the passage through the canal and the tedious and difficult voyage of the Red Sea. They would undoubtedly have preferred to round the free sea-way of the Cape of Good Hope, with all its ocean dangers and excitements, to threading their way through such an inland passage, involving risks of rocks and shoals, protracted calms and contrary winds. But the introduction of ocean-going screw-steamers was an entirely new feature in navigation. Being independent of wind for their propulsion, and being admirably fitted for navigating narrow straits and passages, their rapid and general adoption by all the leading shipping firms in the world afforded not only a plea, but a necessity for the short communication by the Mediterranean and Red Sea. It was indeed a great achievement to reduce the distance between Western Europe and India from 11,379 to 7628 miles, equal, according to Admiral Richards and Colonel Clarke, R. E., to a saving of thirty-six days on the voyage; and this is the great result effected by cutting the Suez Canal between the Mediterranean and the Red Sea.

CANAL, or CANALETTO, ANTONIO, a Venetian painter, born October 18, 1697, was bred with his father, a scene painter, at Venice, and for some time followed his father's line of art. In 1719 he went to Rome, where he employed himself chiefly in delineating ancient ruins, and particularly studied effects of light and shade, in which he became an adept. He was the first painter who made practical use of the camera lucida. In his latter days he resided for some time in England. His pictures, in their particular range, still remain unrivalled. He died August 20, 1768.

CANANDAIGUA, capital of Ontario county, N. Y., is situated at the northern end of a lake of the same name, twenty-nine miles southeast of Rochester by rail. It is a railway junction of some importance, and has public buildings and educational and commercial facilities. Its incorporation dates from 1815. The lake is a beautiful sheet of water about fifteen miles long, with a breadth varying from less than a mile to more than a mile and a half. It is about 437 feet above Lake Ontario. Population 1890, 5,847.

CANARY (*Fringilla canaria*), a well-known species of Conirostral Bird, belonging to the family *Fringillidae* or Finches. It is a native of the Canary Islands and Madeira, where it occurs abundantly in the wild state, and is of a greyish-brown color, slightly varied with brighter hues, although never attaining the beautiful plumage of the domestic bird. It was first domesticated in Italy during the 16th century, and soon spread over Europe, where it is now the most common of cage-birds. During the 350 years of its domestication, the canary has been the subject of careful artificial selection and of crossing with allied species, the result being the production of a bird differing widely in the color of its plumage, and, in a few of its varieties, even in size and form, from the original wild species. The prevailing color of the most admired varieties of the canary is yellow, approaching in some cases to orange, and in others to white; while the most robust birds are those which, in the dusky green of the upper surface of their plumage, show a distinct approach to the wild forms. The least prized are those in which the plumage is irregularly spotted and speckled. In one of the most esteemed varieties, the wing and tail feathers are at first black—a peculiarity, however, which disappears after the first moulting. Size and form have also been modified by domestication, the wild canary being not more than $5\frac{1}{2}$ inches in length, while a well-known Belgian variety usually measures 8 inches. There are also hooped or bowed canaries, feather-footed forms, and top-knots, the latter having a distinct crest on the head; but the offspring of two such top-knotted canaries, instead of showing an increased development of crest, as might be expected, are invariably bald on the crown. Most of the varieties, however, of which no fewer than twenty-seven were recognized by French breeders so early as the beginning of last century, differ merely in the color and the markings of the plumage. Hybrids are also common, the canary breeding freely with the siskin, goldfinch, citril, greenfinch, and linnet. Some of the hybrids thus produced are, according to Darwin, almost completely fertile, but they do not seem to have given rise to any distinct breed. It is the female canary which is almost invariably employed in crossing, as it is difficult, if not impossible, to get the females of the allied species to sit on the artificial nests used by breeders. In a state of nature canaries pair, but under domestication the male bird has been rendered polygamous, being often put with four or five females; still he is said to show a distinct preference for the female with which he was first mated. It is from the others, however, that the best birds are usually obtained. The canary is very prolific, producing eggs, not exceeding six in number, three or four times a year, and in a state of nature it is said to breed still oftener. The work of building the nest, and of incubation, falls chiefly on the female, while the duty of feeding the young rests mainly with the cock bird. The natural song of the canary is loud and clear; and in their native groves the males, especially during the pairing season, pour forth their song with such ardor as sometimes to burst the delicate vessels of the throat. The males appear to compete with each other in the brilliancy of their melody, in order to attract the females, which, according to Bechstein, always select the best singers for their mates. The canary readily imitates the notes of other birds, and in Germany and especially Tyrol, where the breeding of canaries gives employment to a large number of people, they are usually placed for this purpose beside the nightingale. In England they are taught in a

similar way to imitate the woodlark. They are also taught to whistle one or two airs, and even to articulate a few words. The female possesses considerable vocal powers, but her notes are weaker than the male's and her song usually less consecutive.

CANARY ISLANDS, THE, lie in the North Atlantic Ocean, between the parallels of $27^{\circ} 4'$ and $29^{\circ} 3'$ N. lat., and the meridians of $13^{\circ} 3'$ and $18^{\circ} 2'$ W. long. The seven principal islands, with their area in English square miles, and their population in 1889, are as follows:

	Teneriffe.	Grand Canary.	Palma.	Lanza-rote.	Fuerte-ventura.	Go-mera.	Hierro.
Area.....	877.7	758.3	718.5	323.5	326.1	169.7	82.2
Population, 1889	112,000	80,000	36,000	19,000	15,000	13,000	5,026

Fuerteventura lies nearest to the African coast, the interval being between 50 and 60 miles. Besides these there are many islets, most of which are uninhabited.

Juba, king of Mauritania, whose account has been transmitted to us by the elder Pliny, informed the Romans of the existence of the Canary Islands. He mentions "Canaria, so called from the multitude of dogs of great size," and "Nivaria, taking its name from perpetual snow, and covered with clouds," doubtless Teneriffe. Canaria was said to abound in palms and pine trees. Both Plutarch and Ptolemy speak of the Fortunate Islands, but their description is so imperfect that it is not clear whether the Madeiras or the Canaries are referred to. There is no farther mention of them until we read of their rediscovery about 1334, by a French vessel driven amongst them by a storm. A Spanish nobleman thereupon obtained a grant of them, with the title of king, from Clement VI., but want of means prevented him from carrying out his project of conquest. Two expeditions subsequently set out from Spanish ports, and returned without having taken possession. At length three vessels, equipped by Jean de Bethencourt, a gentleman of Normandy, sailed from Rochelle in 1400, and bent their course to the Canaries. He landed at Lanzarote and Fuerteventura, but being opposed by the natives, and finding himself deficient in means to effect his purpose, he repaired to the court of Castile, and obtaining from Henry III. a grant of the islands, with the title of king, he sailed in 1404 with a strong force, which mastered Lanzarote, Fuerteventura, Gomera, and Hierro, without bloodshed. Being repulsed in his attempts on Palma and Canary, he returned to Europe in 1408 to obtain further assistance. He was well received at the Castilian court, where he was promised aid; but he died shortly afterwards in France. Bethencourt's nephew had been left governor of the islands, and claimed to succeed to his uncle's rights. Being charged with many acts of misgovernment, he went to Spain to clear himself, and whilst there sold his rights to Don Enrique de Guzman, who, after expending large sums in fruitless endeavors to reduce the unconquered islands, sold them to another Spaniard named Paraza. His successor, about 1461, took nominal possession of Canary and Teneriffe, but the natives effectually resisted their occupation of them. Meantime it appeared that Jean de Bethencourt's nephew had fraudulently made a second sale of the islands to Portugal, and the difference thus arising between the crowns of Spain and Portugal was ended by the cession of the islands to the former. Grand Canary, Teneriffe, and Palma remaining unsubdued in 1476, Ferdinand and Isabella of Spain compelled Paraza's successors to sell those islands to the crown; and the following year 1000 men were dispatched to reduce them. After much

bloodshed, and with reinforcements from the mother country, the Spaniards, under Pedro de Vera, became masters of Grand Canary in 1483. Palma was conquered in 1491, and Teneriffe in 1495, by Alonzo de Lugo. All the islands still continue in the possession of Spain.

As to the derivation of their original inhabitants, the Guanches, nothing certain is known. The most probable supposition is that they came from the adjoining coast of Africa. Pliny states that the islands were uninhabited at the time of which he wrote. If this were so, we might infer, from the absence of any trace of Mahometanism amongst the people found there by the Spaniards, that the migration took place between the time to which his account refers and the time of the conquest of Barbary by the Arabs. Many of the Guanches fell in opposing the Spanish invasion, many were sold by the conquerors as slaves, and many conformed to the Roman Catholic faith and intermarried with the Spaniards,—so that all trace of them as a distinct race is lost. They were said to be of tall stature, and Humboldt styles them the Patagonians of the Old World; but the skeletons of Guanches when measured have been found to be less than average skeletons of Europeans. The Guanches embalmed the bodies of their dead, and placed them in caves; and many mummies have been found at different times in a state of extreme desiccation, each weighing not more than 6 or 7 lb. Two inaccessible caves in a vertical rock by the shore, 3 miles from Santa Cruz (Teneriffe), are said still to contain bones. A few words of the languages spoken by the ancient inhabitants have been preserved, and a resemblance of some of them to words of North African dialects has been noticed. On the other hand, the Guanches had customs, such as that of preserving their dead, in which they differed from the Berbers.

The present inhabitants are slightly darker than the people of Spain, but in other respects are scarcely distinguishable. The men are of middle height, well-made and strong; the women are not striking in respect of beauty, but they have good eyes and hair. Spanish is the only language in use. The people have most of the traits of the people of the peninsula; they are sober, but given to gambling; they are quick, but lazy, faithless and superstitious. The lower orders are quite illiterate, and the better classes not very enlightened. A few booksellers' shops of a minor description exist at Santa Cruz and Las Palmas. The sustenance of the lower classes is chiefly composed of fish, potatoes and *gofio*, which is merely Indian corn or wheat roasted, and then, when ground, kneaded with water or milk.

The Archipelago is politically considered part of the province of Andalusia. The governor-general, who resides at Santa Cruz, has chief command both in civil and military affairs. The actual administration of affairs is in the hands of two lieutenant-governors, who reside at Santa Cruz and Las Palmas. On the other islands are deputy-governors, acting under the lieutenant-governor to whose district they belong. The military force is composed of a battalion of soldiers of the line, numbering about 1000 men; six regiments of militia, amounting to about 8000 men, distributed amongst the islands; and a few companies of artillery. There is a military commander on each island. The great court of appeal sits at Las Palmas. Courts of first instance sit at Santa Cruz, Orotava, and Las Palmas. The land in great part is strictly entailed.

In ordinary years sufficient grain and potatoes are produced to supply the wants of the islands. The soil on the lower part of the islands, where water is plentiful, is productive; in some places two crops of Indian corn and one of potatoes can be obtained from the same

piece of ground in a twelvemonth. Except at Fuerteventura, the vine is much cultivated, but chiefly at Teneriffe, the best wines being produced on the northwest coast. None, however, is considered so good as the wine of Maderia. The most esteemed kind is sent to England under the name of Vidonia. The grape disease made its appearance at the Canaries in 1853, and destroyed nearly the whole crop. Previously the total annual produce was estimated at about 40,000 pipes, of which 25,000 pipes were produced in Teneriffe. Between 8000 and 9000 pipes were exported. The price per pipe on board ranged from \$40 to \$100. Some of the wine is distilled into good brandy. Sumach, canary-seed, and a little flax are grown. Sweet potatoes, maize, gourds, pumpkins, tara (*Colocasia antiquorum*), lentils, *Cer arietinum*, beans, kidney beans, and lupines are extensively cultivated for food. From bad management the fruits are generally inferior. They include oranges, figs, bananas, dates, pineapples, pomegranates, papaws, guaves, custard apples, and prickly pears. There are no cocoa-nut trees or bread-fruit trees. A little oil is obtained from the olive in Grand Canary.

The indigenous mammals and reptiles of the Canary Islands are very few in number. Of the former, only species of dog, of swine, of goat, and of sheep were found upon the island by the Spanish conquerors. The race of large dogs which is supposed to have given a name to Canary has been long extinct. A single skeleton has been found, which is deposited in one of the museums of Paris. The ferret, rabbit, cat, rat, mouse, and two kinds of bat have become naturalized. The ornithology is more interesting, on account at once of the birds native to the islands and the stragglers from the African coast. The latter are chiefly brought over in winter when the wind has blown for some time from the east. The list of reptiles is limited to three lizards and a frog. The only fresh water fish is the eel. The marine fishes are not numerous, the reason perhaps being that the steepness of the coast does not allow seaweed to grow in sufficient quantity to support the lower forms of marine animal life. Whales and seals are occasionally seen. The cuttle-fish is abundant, and is sought for as an article of food.

The position of mountainous islands like the Canaries, in the sub-tropical division of the temperate zone, is highly favorable to the development, within a small space, of plants characteristic of both warm and cold climates. Von Buch refers to five regions of vegetation in Teneriffe:—1. From the sea to the height of 1300 feet. This he styles the African region. The climate in the hottest parts is similar to that of Egypt and southern Barbary. Here grow, among the introduced plants, the coffee-tree, the date-palm, the sugar-cane, the banana, the orange-tree, the American agave, and two species of cactus; and among indigenous plants, the dragon-tree on the north-west of Teneriffe. A leafless and fantastic euphorbia, *E. canariensis*, and a shrubby composite plant, *Cacalia Kleinia*, give a character to the landscape about Santa Cruz. 2. Between 1300 feet and 2800 feet. This is the region of South European vegetation, the climate answering to that of southern France and central Italy. Here flourish the vine and the cereals. 3. The region of indigenous trees, including various species of laurel, an *Ardisia*, *Ilex*, *Rhamnus*, *Olea*, *Myrica*, and other trees found wild also at Madeira. The clouds rest on this region during the day, and by their humidity support a vegetation amongst the trees, partly of shrubs, and partly of ferns. It extends to the height of 4000 feet. 4. The region of the beautiful *Pinus canariensis*, extending to the height of 6400 feet; here the broad-leaved trees have ceased to grow, but arborescent heaths are found throughout its whole

extent, and specimens of *Juniperus oxycedrus* may be met with. 5. The region of Retama (*Cytisus nubigenus*), a species of white-flowering and sweet-scented broom, which is found as high as 11,000 feet. At the upper edge of this region a lilac-colored violet clings to the soil, and above there is nothing but a little lichen. The number of wild flowering plants may be estimated at 900, upwards of 270 of which are peculiar to the Canaries. The forms of vegetation must in the main be considered North African, since the origin of many of those which they have in common with Southern Europe should be looked for in Africa. The character of the vegetation in Lanzarote and Fuerteventura islands, composed of extensive plains and low hills, with few springs, is different from that of the other islands, which are more elevated and have many springs. The wood is more abundant, and the vegetation more luxuriant.

TENERIFFE, the largest island of the group, lies between Grand Canary and Gomara. It is of irregular shape, 60 miles in length, with an extreme breadth of 30 miles. Not more than one-seventh is cultivable. A chain of mountains traverses the island in the direction of its greatest length, and in the middle of the broadest part rises the celebrated Peak, locally known as the Pico de Teyde, which with its supports and spurs, occupies nearly two-thirds of the whole island. It has a double top; the highest point, El Piton, is 12,200 feet above the sea; the other, Chahorra, connected with the first by a short narrow ridge, has a height of 9880 feet. They are both orifices in the same grand dome of trachyte. Neither reaches the line of perpetual snow. There is, however a natural cavern, 11,050 feet above the sea, where snow is preserved all the year. Snow remains about four months on the upper part of the Peak. The view from the highest point, when no clouds intervene, is very extensive. All the islands of the Archipelago are visible, and the horizon is 140 miles distant. Neither the coast of Africa nor the island of Maderia is within the range of vision.

We have no account in history of eruptions from either crater of the Peak. In 1795 a great quantity of lava was poured out from three vents on the eastern side; and in the same year lava streams issued from a crater near Guimar, half-way between Santa Cruz and the Peak. In the following year, a vent on the north-western side of the Peak discharged a copious stream, which flowed down to the sea, and nearly filled up the harbor of Garachico. For three months in 1798 much lava and other volcanic matter were ejected from orifices to the west of Chahorra.

Santa Cruz de Santiago, on the south coast, is the residence of the governor-general of the Canaries, the civil lieutenant-governor of the Teneriffe district, and the military governor of the island. It is a well-built and tolerably clean town of 10,830 inhabitants, lying on a small plain bounded by bare and rugged volcanic rocks, amongst which lie narrow valleys called *barrancos*.

Laguna (population 4645) stands at the distance of four miles from Santa Cruz, in the centre of a plain where much grain is produced, elevated 1725 feet above the sea, and nearly surrounded by mountains. The situation is beautiful, but the town itself is gloomy.

GRAND CANARY (*Gran Canaria*), the most fertile island of the group, is nearly circular in shape, with a diameter of 24 miles and a circumference of 75 miles. The interior is a mass of mountain, reaching to the height of about 6000 feet above the sea, with ravines radiating to the shore. Its highest peak, Los Pexos, is 6400 feet above the sea. Large tracts are covered with native pine (*P. canariensis*). There are several mineral springs on the island. From the nature of the ground

only a small part is under cultivation. *Las Palmas* (population 12,572), the seat of the local Government, is a well-built and clean town on a small bay on the north coast, deriving its name from the numerous palm trees. It contains a handsome cathedral, a hospital, a college, several secularized convents, and an alameda or public walk. Its climate is more humid than that of Santa Cruz. Water is brought into the principal streets and squares by an aqueduct. The harbor, Puerto de la Luz, is defended by several forts, and affords good anchorage and shelter against all winds except the south-east. A British vice-consul resides here. In 1851 the cholera visited the island, and 9000 persons died, whilst not a single case occurred on any other island. *Telde*, the second place in the island, stands on a plain, surrounded by palm trees. At *Atalaya*, a short distance from Las Palmas, the making of earthenware vessels employs some hundreds of people, who inhabit holes made in the tufa.

PALMA (correctly, San Miguel de la Palma), 26 miles long, with an extreme breadth of 16 miles, lies 67 miles W.N.W. of Teneriffe. It is traversed in its longest direction (north to south) by a chain of mountains, the highest of which is 7900 feet above the sea. At the broadest part is a crater nine miles in diameter, known as the Caldera (*i.e.*, cauldron), from which, on its south-west side, runs a ravine to the sea. In 1677 an eruption, preceded by an earthquake, took place from a volcano at the southern extremity of the island, and much damage was done by the ejected ashes, stones, and lava. The sugar-cane is grown on an elevated plain called Los Llanos. *Santa Cruz* on the eastern coast is the principal town (population, 4,400). Ribands and stockings are manufactured there from silk produced on the island. The anchorage is good. The cultivated soil is fertile, but the laboring classes are in a wretched condition, notwithstanding their industrious habits.

LANZAROTE, the most easterly of the group, has a length of 31 miles and a breadth varying from 5 to 10 miles. It is naked and mountainous, bearing everywhere marks of its volcanic origin. A short distance inland is the town of Arrecife (population 2700), where a British vice-consul resides. The climate is hot and dry. There is only a single spring of fresh water on the island, and that is in a position difficult of access. From the total failure of water the inhabitants were once compelled to abandon the island. Grain, wine (which is of superior quality), brandy, barilla, orchil, and raisins made from the muscatel grape are the principal articles of export. Dromedaries are used as beasts of burden.

FUERTEVENTURA lies between Lanzarote and Grand Canary. It has a length of 52 miles, and an average width of 12 miles. Though less mountainous than the other islands, its aspect is barren. The springs of fresh water are only two, and they are confined to one valley. *Cabras*, on the eastern coast (population 1000), is the chief port. Dromedaries are bred here.

GOMERA lies 20 miles south-west of Teneriffe. Its greatest length is about 23 miles. The coast is precipitous and the interior mountainous, but it has the most wood and is the best watered of the group. The inhabitants are very poor. The palm trees produce excellent dates; and wine, brandy, orchil, raw silk, and dried fruits are sent to Teneriffe. Dromedaries are bred on Gomera in large numbers. *St. Sebastian*, the chief town and a port, has 2240 inhabitants. Columbus resided here before sailing in search of the New World.

HIERRO, or *Ferro*, the most westerly and the smallest island of the group, is somewhat crescent-shaped. Its length is about 18 miles, its greatest breadth about 15 miles, and its circumference probably 50 miles.

It lies 92 miles W.S.W. of Teneriffe. Better and more abundant grass grows here than on any of the other islands. The island is exposed to westerly gales, which frequently commit great damage. Fountains of fresh water are few, but there is a sulphurous spring, with a temperature of 102° Fahr. The once celebrated and almost sacred Til tree, which was reputed to be always distilling water in great abundance from its leaves, no longer exists. Only a small part of the cultivable land is under tillage, the inhabitants being principally employed in pasturage. Wine, brandy, orchil, excellent dried figs, and sheep are sent to Teneriffe. At *Valverde*, the principal town, with 4640 inhabitants, the local authorities reside. Geographers were formerly in the habit of measuring all longitudes from Ferro, the most westerly land known to them. The longitude assigned at first has, however, turned out to be erroneous; and the so-called "Longitude of Ferro" does not coincide with the actual longitude of the island.

CANARY WINE, also known as TENERIFE, is the produce of the Canary Islands, the best known being called Bidogne or Vidonia wine, which is a dry white wine resembling Madeira, but with less body and perfume. It is produced chiefly on the Island of Teneriffe. The name *Canary* was formerly applied generally to dry white wines, which were frequently seasoned with sugar, cinnamon, nutmeg, roasted apples, and eggs.

CANCALE, a seaport town of France, in the department of the Ille-et-Vilaine, ten miles east of St. Malo, on the Bay of St. Michael. Population, 4,000.

CANCAN, a dance, something of the nature of a quadrille, but accompanied by leaps and contortions of the body.

CANCAO, CANCAR, or KANG-KAO, otherwise known as Ponthiamus or Potai-mat, or in Chinese, Ha Thian, the capital of a small state in Western Cambodia, on the eastern side of the Gulf of Siam, at the mouth of the River Cancao or Klong Chanda.

CANCER, or CARCINOMA (from *cancer*, an eating ulcer), is the name given to a class of morbid growths or tumors which occur in man, and also in certain of the lower animals. The term is apt to be somewhat loosely employed, partly owing to the fact that there are not a few forms of diseased growth respecting which it is still a matter of debate whether they are to be regarded as cancerous or not; and in some measure also to the difficulty often experienced in recognizing true cancer particularly in its earlier stages.

The disease exists in various forms, which, although differing from each other in many points, have yet certain common characters to which they owe their special significance.

In structure such growths are composed of nucleated cells and free nuclei together with a milky fluid called cancer juice, all contained within a more or less dense fibrous stroma or framework.

They have no well-defined limits, and they involve all textures in their vicinity, while they also tend to spread by the lymphatics and veins, and to cause similar growths in distant parts or organs called "secondary cancerous growths."

They are undergoing constant increase, and their progress is usually rapid.

Pain is a frequent symptom. When present it is generally of a severe and agonizing character, and together with the local effects of the disease and the resulting condition of ill health or "cachexia," hastens the fatal termination to which all cancerous growths tend.

When such growths are removed by the surgeon they are apt to return either at the same or at some other part.

The chief varieties of cancer are *Scirrhus* or hard cancer, *Encephaloid* or soft cancer, and *Epithelial* cancer.

Scirrhus is remarkable for its hardness, which is due to the large amount of its fibrous, and relatively small proportion of its cell elements. It is of comparatively slow growth but it tends to spread and to ulcerate. Its most common seat by far is the female breast, though it sometimes affects internal organs.

Encephaloid is in structure the reverse of the last, its softness depending on the preponderance of its cell over its fibrous elements. Its appearance and consistence resemble brain substance (hence its name), and it is of such rapid growth as to have given rise to its being occasionally termed *acute cancer*. Its most frequent seats are internal organs or the limbs. Ulceration and hæmorrhage are common accompaniments of this form of cancer.

Epithelial cancer is largely composed of cells resembling the natural epithelium of the body. It occurs most frequently in those parts provided with epithelium, such as the skin and mucous membranes, or where those adjoin, as in the lips. This form of cancer does not spread so rapidly nor produce secondary growths in other organs to the same extent as the two other varieties, but it tends equally with them to involve the neighboring lymphatic glands, and to recur after removal.

Various views are entertained and much discussion has taken place respecting the causation of cancer, but little has as yet been satisfactorily ascertained on the point.

Cancer is essentially a disease of degeneracy, all statistics going to show its relatively great frequency after middle life, and the mortality, according to Dr. Walshe, goes on increasing with each decade until the eightieth year. Cancer may, nevertheless, attack persons of any age, and instances of its occurrence are not unknown even among young children. It affects females to a much larger extent than males,—this, however, being fully explained by the greater liability of the female breast and of the uterus to the disease than any other organs of the body; for, apart from this, cancer is quite as common among men. It occurs equally among all ranks of life.

The commencement of a cancerous growth is frequently attributed to some local injury, as in the case of blows on the breast, or in the well-known instance of cancer of the lip, following the irritation produced by smoking a short clay pipe. But it is only as exciting causes that the influence of such injuries can be admitted; and there must still remain, as necessary to account for the disease, some antecedent condition of the system which gives the particular direction to the form of morbid action in the part.

CANCER, the *Crab*, the fourth of the twelve constellations of the zodiac.

CANCER-ROOT, or BEECH-DROPS (*Epiphegus virginiana*, a parasitic herb of the order *Orobanchæ*), a native of North America, growing on the exposed roots of beech-trees. The whole plant is powerfully astringent, and the root is especially bitter and nauseous. In conjunction with arsenious acid, it is believed to have formed a medicine once famous in North America under the name of *Martin's Cancer Powder*. Another American plant of the same order, *Phelipæa biflora*, sometimes shares the same name and repute in popular medicine.

CANCRIN, FRANZ LUDWIG VON (1738–96), a German mineralogist and metallurgist, was born in 1738 at Breitenbach. After acting as professor and holding municipal offices in Hesse and at Altenkirchen, he attracted the notice of the Empress Catherine of Rus-

sia, who made him director of the salt-mines of Staraja-Russa, councilor of the Imperial College, and, three years before his death, councilor of state. He is the author of a large number of works in German on mineralogy and metallurgy.

CANCRUM ORIS, known also as *Noma*, *Water-cancer*, and *Water-canker*, is a peculiar form of mortification or gangrene, arising apparently from defective nutrition. The disease seldom occurs except between the second and eleventh years, and is usually preceded by measles, remittent or intermittent fever, or some other serious disease.

CANDAHAR. See KANDAHAR.

CANDELABRUM, in Classical Antiquities, a stand for a lamp or lamps, usually of such a height as, when placed on the floor, to be serviceable to a person seated or reclining on a couch.

CANDESH, or KANDIESH. See KHANDESH.

CANDIA, the modern name of the island of CRETE (*q.v.*).

CANDIA, formerly the capital and still the most populous city of Crete, to which it has given its name (see CRETE), is situated on the northern shore somewhat nearer the eastern than the western end of the island. It is still surrounded by its extensive Venetian fortifications; but they have fallen into disrepair, and a good part of the town is in a dilapidated condition, mainly from the effects of earthquakes. The population of the town is estimated at from 15,000 to 18,000, about two-thirds being Turks. Candia, or as it is frequently called, Megalo Castro (the Great Fortress), occupies the site of the ancient *Heracleion*, the seaport of *Gnossus*, and is still known by that name to the Greek speaking population.

The ruins of the mother city are situated at the distance of about two miles and a half to the southeast at the village of Makri Teikos or Long Wall.

CANDIAC, JEAN LOUIS PIERRE ELIZABETH DE MONTCALM DE, a child of astonishing precocity, born at the Château de Candiac, in the diocese of Nîmes in France, in 1719. At four years of age he read Latin, either printed or in manuscript; and at six he understood Greek and Hebrew, had an astonishing acquaintance with arithmetic, history, geography, and heraldry, and had read many of the best authors. His extraordinary powers attracted the attention of the learned; and it was for his benefit that the typographic board was contrived by M. Dumas, who superintended his instruction. He died at Paris in 1726.

CANDLE, a cylindrical rod of solid fatty or waxy matters, enclosing a central fibrous wick, and designed for giving light.

The raw materials mostly used for candles are tallow and palm oil; they are also made from wax, cocoa-nut oil, paraffin, spermaceti, the mineral wax called ozokerit, &c. For ordinary tallow candles, the mutton or ox tallow, taken as soon as possible after separation from the carcase, is sorted, cut into pieces, and melted in a pan; the membranous matters, which are known as *graves* or *cracklings*, collect at the surface; and the liquid tallow, after being strained through a sieve and washed with boiling water, is ready for use. The candles are made either by dipping or by moulding.

The common tallow candles, however, are greatly inferior, both as regards illuminating power and absolute expense, to those now obtained from raw fats by processes based on the researches of some French chemists. The stearine or stearic acid industry, which is now of large proportions, originated in M. Chevreul's discovery that fats are composed of one or more inflammable fatty acids combined with a comparatively unflammable base, glycerine. Thus, tallow or palm

oil consists of palmitic, stearic, and oleic acids, with glycerine. An economical method of separating the acids and the glycerine was first discovered in 1831 by De Milly, who used lime for the purpose, in place of potash and soda, the substances adopted by Chevreul and Gay-Lussac in their patent of 1825. The factory established by De Milly and Motard near the *Barrière de l'Étoile*, in Paris, gave the "star candles" their name.

A candle is a simple but ingenious contrivance for supplying a flame with as much melted material as it can consume without smoking. If the thickness of the candle be properly adapted to that of the wick, the fatty matter immediately below the flame is melted, so that a cup-like reservoir is produced, always properly filled for feeding the flame. The fibres of the wick act as a congeries of capillary tubes which convey the fluid fat into the flame, where, being exposed to a high temperature and sheltered from the air by the outer shell of flame, it becomes subjected to a dry distillation. The inflammable vapor thus produced rises, and by constant combustion diminishes in quantity and consequently in diameter, until at length it entirely disappears in a point. A current of air from below is produced by the heat of the flame; the oxygen of the air, aided by the high temperature, decomposes the inflammable vapor of the fat into hydrogen and carbon, and unites with these to form water and carbonic acid.

CANDLEBERRY, CANDLEBERRY MYRTLE, WAX TREE, WAX MYRTLE, TALLOW TREE, or BAYBERRY (*Myrica cerifera*), a small tree, or, more generally, a low, spreading shrub, a native of the United States, most abundant in the South. The evergreen leaves are dotted with resin-glands, and are fragrant when bruised. The drupes—popularly called berries—when ripe, are covered with a greenish-white wax; the wax is collected by boiling them and skimming, and is afterward melted and refined. It is used chiefly in the manufacture of candles.

CANDLE-FISH (*Thaleichthys pacificus* or *Osmerus thaleichthys*), a remarkable fish of the family Salmonidæ, nearly allied to the smelt (*Osmerus eperlanus*), if not in the same genus with it. It inhabits the Pacific Ocean, near the western shores of America, from Vancouver's Island northward, and is common in the Bay of San Francisco. It is probably the fattest or oiliest of fishes, if not of animals, and is used by the Indians not only as an article of food, but for making oil. The extraction of its oil is now a regular business. To broil or fry it is nearly impossible, because it almost completely melts into oil. When dried it may be burned as a candle. It is also known as *Eulachon* or *Oulachon*.

CANDLEMAS, a church festival, held on February 2, which has in Scotland been chosen as one of the four-term days. The festival commemorates the purification of the Virgin; and the observances to which it owes its name, viz., the lighting of candles, and, in the Roman Catholic Church, the consecration of the candles which are to be used during the year for ecclesiastical purposes, are said to have an emblematic reference to the prophecy of Simeon that the child Jesus should become "a light to lighten the Gentiles." The institution of this feast dates probably from the reign of Justinian, and the year 542 is sometimes fixed upon as that of its first celebration. It is supposed to have grown out of the heathen festivals held in this month—a view which is supported by the following considerations: (1), The word February (connected with *februare*) denotes purification; (2), in this month the purification of the people took place; (3), the rites of the Lupercalia, which were celebrated on the 15th, included

the lighting of candles, in allusion to those used by Ceres in her search for Proserpine, and (4), the origin of other Christian feasts appears to have been similar.

CANDLESTICK, in the earlier meaning of the word, was the name applied to any form of support on which lights, whether candles or lamps, were fixed; and so it happens that what would now be called a *candelabrum* is still sometimes spoken of from tradition as a 'candlestick, e.g., as when Moses was commanded to make a candlestick for the tabernacle, of hammered gold, a talent in weight, and consisting of a base with a shaft rising out of it and six arms, and with seven lamps supported on the summits of the six arms and central shaft. See CANDELABRUM.

CANDLISH, ROBERT SMITH, D.D. (1806-73), an eminent Scottish clergyman, was born at Edinburgh on March 23, 1806. His father, who was a teacher of medicine, having died a few weeks after his birth, the widow and family removed to Glasgow, where young Candlish was brought up and educated. In 1818 he entered the University of Glasgow, and after a curriculum of five sessions, during which he carried off many honors, he duly graduated M.A. From the very commencement of his ministry in Edinburgh, Candlish took the deepest interest in ecclesiastical questions, and he soon became involved as one of the chief actors in the struggle which was then agitating the church. His first Assembly speech, delivered in 1839, placed him at once among the leaders of the party that afterward formed the Free Church, and his influence in bringing about what is known as the Disruption was inferior only to that of Chalmers.

As a theologian the position of Candlish was perhaps inferior to that which he held as a preacher and ecclesiastic, but it was not inconsiderable. So early as 1841 his reputation in this department was sufficient to secure for him the nomination to the newly-founded chair of Biblical Criticism in the University of Edinburgh. In 1862 he was again connected with the New College. He died on October 19, 1873.

CANDOLLE, AUGUSTINE PYRAME DE. See DE CANDOLLE.

CANDYTUFT (*Iberis*), a genus of Cruciferae, far more distinguished by unequal petals, the two large-being toward the circumference of the dense corymbs. The species are chiefly found in the Mediterranean countries, and the name is supposed to be derived from that of the Island of Candia (Crete), the name *Iberis* from Iberia (Spain).

CANE, a name applied to many plants which are possessed of long, slender, reed-like stalks, or stems, as for example, the sugar-cane, the bamboo-cane, or the reed-cane. From the use as walking-sticks to which many of these plants have been applied, the name cane is improperly given to sticks irrespective of the source from which they are derived. Properly it should be restricted to a peculiar class of palms, known as ratans, included under the two closely allied genera *Calamus* and *Demonorops*, of which there are a large number of species. The plants are found widely extended throughout the islands of the Indian Archipelago, the Malay Peninsula, China, India, and Ceylon; and examples have also been found in Australia and Africa. They were described by the learned Rumphius, under the name of *Palmijunci*, as inhabitants of dense forests into which the rays of the sun scarce can penetrate, where they form spiny bushes, obstructing the passage through the jungle. They rise to the top of the highest trees and fall again so as to resemble a great length of cable, adorned, however, with the most beautiful leaves, pinnated or terminating in graceful tendrils. The plants creep or trail along to an enormous length, sometimes,

it is said, reaching 500 feet. In the Paris exhibition of 1855 two examples of *Calamus verus*, measuring respectively 270 and 230 feet, were exhibited. The stem in few cases exceeds one inch in diameter, and it is mostly of much smaller dimensions. When growing it is sheathed in a base of numerous leaves, which the natives, in preparing the canes for the market, strip off by pulling the cut plant through a notch made in a tree. The canes always present distinct rings at the junction of the sheathing leaves with the stem. They assume a yellow color as they dry; and those imported from Calcutta have a glossy surface, while the produce of the Eastern Archipelago presents a dull exterior.

Canes, on account of their lightness, length, strength, and flexibility, are used for a great variety of purposes by the inhabitants of the countries in which they grow. Split into thin strips they are twisted to form ropes and ships' cables, an application mentioned by Captain Dampier in his *Voyages*. A more important application, however, is for basket-work, and for making chairs, couches, pillows, etc., as the great strength and durability of thin and easily-prepared strips admit of such articles being made at once airy, strong, and flexible. Much of the beautiful and elaborate basket-work of the Chinese and Japanese is made from thin strips of cane, which are besides used by the Chinese for larger works, such as door-mats, houses, and sheds.

CANEA, or KHANIA, the principal seaport and since 1841 the capital of Crete, is finely situated on the northern coast of the island, about twenty-five miles from its western extremity, on the isthmus of the Akrotiri peninsula, which lies between the Bay of Canea and the Bay of Suda. Population (1890), 12,000.

CANE-BRAKE (*Ludolfia* (*Arundinaria*) *macrosperma*), a colossal reed, nearly allied to the bamboo, which reaches a height of thirty or forty feet, and forms dense swamp-jungles (sometimes of wide area) in marshy places, and along the banks of the Red river, the Arkansas, and the Mississippi, and their tributaries.

CANELLA (*Canella alba*), a small tree belonging to the gamboge order (Clusiaceae), common in the West Indies, where it is often called Wild Cinnamon. The bark of the young branches is the *C. Bark* (White Cinnamon) of apothecaries, and is imported from the Bahamas. It is aromatic and stimulant, but now seldom employed in medicine; in the West Indies it is used as a condiment.

CANEPHORI was the title given to the girls who at Athens were annually selected from noble families to walk in the procession at the Panathenaic and apparently also at other festivals, carrying on their heads baskets containing the implements and apparatus necessary for a sacrifice.

CANG, or CANGUE, an instrument by means of which petty offenders in China are punished. It consists of a large wooden collar fitting closely round the neck, varying in size and weight, but not to be removed by day or night during the whole period of punishment, which may vary in length from a fortnight to three months. Its form prevents the victim from stretching himself at full length, and upon this depends in great part the severity of the punishment. He is left also to be starved or fed by the public at their pleasure.

CANGA-ARGUELLES, JOSE, Spanish statesman, was born in 1770, and died in 1843. He took an active part in the Spanish resistance to Napoleon, in a civil capacity, and was an energetic member of the Cortes in 1812.

CANGIAGI, or CAMBIASO, LUIGI, a distinguished painter, was born at Genoa in 1527, and died at the Escorial in 1585.

CANICATTI, a town of Sicily, in the province of Girgenti, which dates, it is believed, from the Saracenic occupation. It is well built and finely situated on the slope of a hill. The vine, orange, olive, and almond grow abundantly in the neighborhood, and the inhabitants devote themselves chiefly to agricultural pursuits. Population, 20,908.

CANINA, LUIGI (1793-1856), an Italian archæologist and architect, was born at Casale in Piedmont. He became professor of architecture at Turin, and his most important works were the excavation of Tusculum in 1829, and of the Appian Way in 1848.

CANINI, GIOVANNI AGNOLO (1617-66), a designer and engraver, born at Rome in 1617. He was a pupil of Domenichino, and afterward of Barbalunga. He painted some altarpieces at Rome, including two admired pictures for the church of San Martino a' Monti, representing the Martyrdom of St. Stephen and of St. Bartholomew. His painting aimed at general effect, not at precision of detail. Having accompanied Cardinal Chigi to France, he was encouraged by the minister Colbert to carry into execution his project of designing, from medals, antique gems, and similar sources, a series of portraits of the most illustrious characters of antiquity, accompanied with memoirs; but shortly after the commencement of the undertaking Canini died at Rome in 1666.

CANITZ, FRIEDRICH RODOLPH LUDWIG, BARON VON (1654-99), a German poet and politician of noble family, was born at Berlin in 1654. He attended the universities of Leyden and Leipsic, and traveled in England, France, and Italy. In 1680 he became councilor of legation, and Frederick I. made him councilor of state, privy councilor, baron of the empire, and plenipotentiary at the Hague, all which positions he appears to have filled with credit. He died in 1699.

CANKER, a disease of the horse's foot. It usually attacks horses which have large, fleshy frogs, and commences by discharge from the heels or the cleft of the frog. The horn becomes soft and disintegrated, and the vascular structures beneath become inflamed. Though there is no constitutional fever, the horse becomes emaciated and unfit for work. During wet weather, and on damp soil, the symptoms increase in severity. The sore structures bleed on the least touch, and considerable fungoid granulations form rapidly, and there is a continuous discharge of a whitish-colored fluid, which has an offensive smell. This disease is occasionally hereditary, and it is most frequently seen in lowbred draught or coach horses, though it also affects thoroughbred Clydesdale and other stallions. Dirt, cold, and wet favor the production of the disease, and there is always a tendency to relapse when once an animal has been affected. The animal requires to be treated constitutionally by periodical purgatives and alteratives. Good food, fresh air, and exercise often aid much in the treatment of the disease.

CANKER, a disease of plants especially fatal to fruit-trees in many gardens. The *canker-worm* of the Bible is also translated *caterpillar*.

CANNÆ, in Ancient Geography, a town of Apulia, on the River Aufidus, six miles from its mouth. It is famous for a terrible defeat which the Romans received there from the Carthaginians under Hannibal, 216 B.C.

CANNES, a seaport of France, and the chief town of the department of Var on the Mediterranean, fifteen miles southwest of Nice and twenty-five miles northeast of Draguignan. It enjoys a southern exposure on a seaward slope, and is defended from the northern winds by ranges of hills. Pre-

vious to 1831, when it first attracted the attention of Lord Brougham, it mainly consisted of the old quarter (named Sucquet), and had little to show except an ancient castle, and a church on the top of Mont Chevalier, dedicated in 1603 to Notre Dame d'Espérance; but since that period it has become a large and important town, and one of the most fashionable winter resorts in the south of France, much frequented by English visitors.

Cannes is a place of great antiquity, but its earlier history is very obscure. It was twice destroyed by the Saracens in the 8th and the 10th centuries; but it was afterwards repeopled by a colony from Genoa. In 1815 Napoleon landed in the vicinity after his escape from Elba; and opposite the town is the island of St. Marguerite (one of the Lerins), in the citadel of which the Man with the Iron Mask was confined from 1686 to 1698, and which has acquired a recent notoriety as the prison whence Marshal Bazaine escaped in August 1874. The resident population is about 12,000.

CANNIBALISM, the eating of human flesh by men. This practice has existed from the most ancient times, and has given rise to descriptive terms such (Lat. *anthropophagus*), Anglo-Sax. *man-æta*, Eng. *man-eater*. Since the discovery of the New World, the name of the *Caribs* of the West India Islands, recorded by Columbus under the Latinized forms *Canibales* or *Caribales*, has come into popular use as a generic term for man-eaters, *cannibals*.

Man being by nature carnivorous as well as frugivorous, and human flesh being not unfit for human food, the question first arises why mankind generally have not only avoided it, but have looked with horror on exceptional individuals and races addicted to cannibalism. It is evident on consideration that both emotional and religious motives must have contributed to bring about this prevailing state of mind. Simple association of thoughts causes the remains of a dead kinsman or friend to be treated with respect and tenderness, as may be seen from the conduct of some of the rudest races. Acting in another way, the same ideal associations attaches the horror of death to anything connected with the dead, so that many tribes will avoid the mention of a dead man's name, and will even abandon his hut, and destroy the furniture he has used; this sentiment must tend to preserve the corpse from violation. Moreover, the religious doctrine that the soul outlives the body, continuing in ghostly shape to visit the living, and retaining a certain connection with the mortal remains it once inhabited, has evidently led the survivors to propitiate this honored and dreaded spirit by respectful disposal of the corpse. Taking this combination of causes into consideration, it is readily understood why aversion to cannibalism must be taken as a rule established at a very early stage of culture, and we have only to consider what causes have from time to time led to its infraction. The principal of these have been the pressure of famine, the fury of hatred, and sometimes even a morbid kindness, with certain motives of magic and religion, to which must be added the strong tendency of cannibalism, once started in any of these ways, to develop a confirmed appetite which will afterwards be indulged for its own sake.

The extent to which anthropophagy has been carried among some nations is, no doubt, mainly due to the indulgence of the appetite once aroused. In such cases this reason is openly avowed, or some earlier motive remains rather in pretext than in reality, or the practice is justified on the ground of ancestral custom. It seems, for instance, that the cannibal feasts of old Mexico had become in themselves acceptable to the people, and that we must refer the sickening horrors of Fijian an-

thropophagy more to sensual gratification than to any religious motive. Among conspicuous cannibal races may be mentioned the semi-civilized Battas of Sumatra, whose original instigation to eating their enemies may have been warlike ferocity, but who are described as treating human flesh as a delicacy, and devouring not only war-captives but criminals, slaves, and, according to one story, their aged kinsfolk. Cannibalism assumes its most repulsive form where human flesh is made an ordinary article of food like other meat. This state of things is not only mentioned in past times in descriptions of West Africa, where human flesh was even sold in the market, but still continues among the Monbuttus of Central Africa, whose wars with neighboring tribes are carried on for the purpose of obtaining human flesh, the bodies of the slain being dried for transport, while the living prisoners are driven off like cattle. Where cannibalism for its own sake becomes popular among a warlike people, its effect in thinning population, and even in exterminating weak tribes, becomes perceptible.

As to the history of anthropophagy, the most interesting question is whether at any early period it was ever a general habit of the human race. This has been debated on the evidence of prehistoric human remains (see Schaathausen, *ubi supra*, p. 264; *Proceedings of Congresses of Prehistoric Archæology*, Paris and Copenhagen). It has been well argued that had the men of the quaternary period been cannibals, we should find the bones generally cracked for the marrow like those of beasts, which is not the case; also that, as regards the ancient people of the shell-mounds, had they eaten their own species they would have thrown the human bones into the rubbish heaps with those of beasts and fishes. The discovery of some few ancient human remains, the state of which seems to indicate that the flesh had been eaten, may perhaps be taken to show that prehistoric savages were in this respect like those of modern times, neither free from cannibalism nor universally practicing it. During later ages, it may have even increased rather than diminished with the growth of population,—its greatest excesses being found among high savage tribes or nations above the savage level. But with the rise of civilization to its middle and upper levels, it is more and more kept down by the growing sense of the dignity of man, and eventually disappears, as we may hope, irrevocably.

CANNING, GEORGE (1770–1827), one of the greatest of English statesmen and orators, was born in London on the 11th April 1770. He was descended from an ancient family; but his father, having incurred the displeasure of his parents, was cut off with a scanty allowance, and obliged to try his fortune in the metropolis. Here he studied for the bar, but literature proved too attractive for him, without yielding him even a tolerable livelihood. His affairs were not improved by a marriage with an Irish lady, of good connections and some beauty, but as poor as himself. He died of a broken heart, a year after the birth of his son. The widowed mother took to the stage without achieving any great success, and in this new way of life married twice,—neither time wisely.

It was thus, in the society of the stage, that the future premier of England passed his earliest years. It was well for him, therefore, when one of his parental uncles, a wealthy banker in London, took upon himself the care of his education. Young Canning was then in his eighth year, and from that time had all the advantages of the best education and the most cultured society, for Burke, Fox, Sheridan, and other leading Whigs were guests at his uncle's house. After spending a few years at a London school he went in due time to Eton and Oxford. At both places he highly distinguished him-

self. He was a brilliant scholar, gave promise of the future orator in the debating societies, became known as a wit in a wide circle of admiring friends, and even at Eton, at the age of sixteen, gave decided evidence of literary talent, in a periodical got up amongst his schoolmates. From Oxford he returned to London with the reputation of a man able to perform great things. And now he had to choose between two careers, not easily to be combined by one who had his own way to make in the world. The generous enthusiasm of youth tempted him into a political career; worldly prudence pointed him to the bar as the safer profession for a man without means. Circumstances decided in favor of the former. Pitt was now being drawn into the terrible crusade against the French Revolution, and greatly needed able associates to make head against the fiery eloquence of Fox and Sheridan. To Canning, who soon became known in the clubs and other political circles of the metropolis as a young man of the most brilliant promise, he made the offer of the nomination borough of Newport. This was accepted, and Canning entered Parliament as an adherent of Pitt in 1793, being twenty-three years of age.

Canning is charged with having taken this step from interested motives. In the debating societies of Oxford and the metropolis he had been an enthusiastic Liberal, and had long been the friend of the Liberal leaders. Now, when the prospects of the Whig party were becoming gloomier every day, this crossing over to the ranks of Pitt had a suspicious appearance of convenience. But there is no real ground for such suspicion. With regard to the French Revolution, which was now the all-absorbing political question, Canning simply underwent the same change of opinion as the immense majority of educated Englishmen, Pitt included, hailing it at first as the dawn of a new day for France and Europe, but turning away from it in dismay and indignation, and determined to oppose it, when he saw it was more likely to subvert than to reform society.

From his entrance into Parliament till the death of Pitt in 1806, Canning was an ardent and devoted supporter of all the measures of that statesman. In the House of Commons he soon took his place as one of the most brilliant and successful debaters of the time, though unhappily his efforts needed to be directed against his own friends, Fox and Sheridan; and he gave proof of his business capacity in some of the less prominent departments of the administration. Out of Parliament he fought the Revolution almost as effectively by starting (in 1797) the *Anti-Jacobin*, a weekly paper, in which the principles of innovation in morals, in literature, and above all, in politics, were mercilessly attacked, and their advocates covered with ridicule and abuse. Canning contributed many of the humorous articles, and in this way extended the reputation for caustic wit he had already acquired in Parliament.

In 1800 Canning married Miss Joan Scott. The marriage was in every way a happy and a fortunate one, based on mutual love and esteem, which continued unbroken to the end; while Miss Scott had a large fortune, and was connected with some of the highest of the aristocracy.

On the death of Pitt in 1806, and the formation of a Whig ministry by Fox and the Grenvilles, Canning went into opposition, and showed that, even on a question of humanitarian interest, he was not above the pettiest feelings of party. He supported, but very coldly, the bill for the abolition of the slave-trade.

On the return of the Tories to power in 1807, Canning entered on his first great Government office, the secretaryship for Foreign Affairs. It was one of the darkest periods in the history of England. The great European

coalition had been overthrown at Austerlitz, Austria compelled to an ignominious peace, Prussia nearly annihilated, and Russia obliged, at the peace of Tilsit, to connive at the supremacy of Napoleon, or induced to share in the division of the Continent. Canning performed the arduous duties of his office with extraordinary tact and energy. It was he that planned the expedition to Copenhagen, for the seizure of the Danish fleet, with such secrecy and despatch as completely to anticipate Napoleon, and excite in him the liveliest astonishment and wrath. The negotiations for peace opened with the English Government by Napoleon and Alexander, and the invasion of Spain, still further complicated the difficulties of his position, only to throw new lustre on his genius. He soon saw that the Peninsula was the battlefield on which England could bring her strength advantageously to bear against the armies of the French conqueror. He encouraged the spirit of resistance in the Spanish nation, supported the Spanish armies, first with supplies of arms, and then with the active co-operation of the English forces, and was one of the first to recognize and employ the military capacity of the future duke of Wellington.

Unfortunately, an event soon occurred which deprived the country of his services, when the need was greatest, and when he was the only statesman in England whose talents were of the first order. In 1809, Lord Castlereagh, as Secretary-at-War, had organized the expedition to Walcheren, the worst conducted and the most disastrous of the whole war. In consequence of it a dispute arose between his lordship and Canning, which resulted in a duel, and in the resignation of both. From this unfortunate incident till 1822, Canning took no very prominent part in the Government of the country. This is particularly to be regretted, as the period in question includes the decisive years of the Napoleonic struggle, and the new settlement of Europe by the peace of Vienna, when Canning might have done good service by insisting, more than was done, on the claims of nationality and constitutional liberty. In this he was not free from blame, as he allowed his personal dislikes too much to interfere with his duty to his country. But the chief reason was his advocacy of Catholic Emancipation, which lost him favor at court. Men's motives must always remain to some extent doubtful; still it seems clear that at one time his dislike of Castlereagh, at another his insistence on Catholic Emancipation, prevented him from resuming his place in the Foreign Office. He lived to regret this deeply, and to declare that two years of office at the termination of the European struggle would have been worth ten years of his life. Even now, however, he was not idle. In 1812 he made a powerful speech in favor of Emancipation, which was carried in the Commons by a large majority, but rejected by the Lords. From 1814 to 1816 he was ambassador at Lisbon, and from 1817 to 1820 President of the Board of Control for India. As a member of the Cabinet during the latter period he was very active in support of Government, strongly advocating the coercive measures employed at home during the years which immediately followed the Revolution. It is indeed a noteworthy fact in his political career that, though unable to act with Castlereagh in the most dangerous crises of the French war, he found it right to join him and his associates in such severe measures of repression,—noteworthy, but quite explicable, as Canning never professed to be anything else than a disciple of Pitt.

At the head of the Board of Control, Canning gained the entire confidence of the directors of the East India Company. In consequence, they had appointed him to the governor-generalship of India, and he had proceeded to Liverpool to take leave of the constituents

who had four times returned him to Parliament, when news came of the death of Castlereagh (then earl of Londonderry). The voice of the country had already named him successor in the Foreign Office, and, in this capacity, under the premiership of Lord Liverpool, Canning entered upon the last and most brilliant part of his career. The state of Europe had greatly changed since his resignation of the same office in 1809. The Holy Alliance now aspired to regulate the affairs of the world. Inaugurated by the emperor of Russia, under the inspiration of Madame Krudener, it was at first a sincere attempt of the rulers of Europe to govern on Christian principles. But even the Russian emperor was soon frightened from the path of benevolent reform by the revival of the revolutionary spirit and its appearance in his own army; while interested statesmen like Metternich so utilized the pious aspirations of kings to the profit of despotism, that the Holy Alliance soon became a byword in Europe. Castlereagh had yielded too far to this tendency. The country was getting weary of it. And now Canning came forward to assert the free action of England and the universal right of self-government. He was, however, no revolutionist. In his home and foreign policy alike he aimed at holding a middle course. At home he advocated Catholic Emancipation, and believed in Free Trade, but strenuously opposed Parliamentary Reform. In his foreign policy his principle was that England should hold the balance between the reactionary and the revolutionary parties, "that in order to prevent things going to extremities, she should keep a distinct middle ground, staying the plague both ways." Seeing that the reactionary party predominated in 1822, he judged that England should throw the weight of her influence into the Liberal scales. In accordance with these views, he protested against the doctrine that free institutions should be held only as a spontaneous gift of the sovereign, and disapproved of the measures adopted at the Congress of Verona in 1822, especially of the French invasion of Spain for the restoration of absolutism in 1823,—a year, too, which was marked at home by the passing of the Reciprocity Act, the first step in the direction of Free Trade. In order to render the protest against the invasion of Spain more effectual, it was determined in 1824 to recognize the independence of the South American colonies. On the threatened invasion of Portugal by reactionary Spain in 1826, Canning again interposed with the utmost decision, and the invasion was abandoned. The speeches he made on these occasions, and his general attitude of defiance to despotism, had a marvellous effect, not only in Parliament and in England, but in all civilized communities. He was everywhere hailed as a champion and spokesman of national and popular liberty. The party of progress recovered from the torpor consequent upon the Revolution, and returned to new life. The enthusiasm for his name was heightened when it became known that he had taken the initiative in another act of international justice, by proposing (1826) to France and Russia that combination of the three powers which led to the battle of Navarino and the establishment of Greek independence.

But ere that result had been attained the great statesman was no more. Early in 1827 Lord Liverpool, who had been the nominal head of the Government since 1812, was disabled. Canning, who soon became premier, expected the co-operation of the members of the late administration, but was disappointed, and had to struggle on under the greatest difficulties, and against the most virulent opposition. His exciting labors and the alienation of so many friends were too severe for his sensitive temperament. He caught a severe cold, and

died on the 8th of August 1827. He was buried in Westminster Abbey, in the Statesman's Corner, by the grave of his master Pitt.

CANNING, CHARLES JOHN, EARL AND VISCOUNT (1812-1862), Governor-General of India, was the youngest child of the subject of the preceding notice, and was born at Brompton, near London, on the 14th December 1812. About a month before his death he was created K.G. As he died without issue the title became extinct.

CANNON. See GUNS AND GUNNERY and ARTILLERY.

CANNON-BALL TREE (*Lecythis bracteata* or *Couroupita guianensis*), a large tree of the order Lecythidaceæ, a native of Guiana, but introduced into the West Indies; the fruit is large, nearly round, and is sweet, fragrant, and wholesome.

CANNULA (dim. of Lat. *canna*, a reed; often incorrectly written *canula*), a term applied to small tubes of different kinds used in surgery; especially to a tube inclosing a *trocár*, or perforator (withdrawn after it has effected the introduction of the tube), used for evacuating air or fluid from any cavity in the body; and to the tube for the patient to breathe through, which is inserted into the windpipe after the operation of tracheotomy.

CANO, ALONZO (1600-1667), one of the most vigorous of the Spanish painters, and also, like Michael Angelo, with whom he is usually compared, an architect and sculptor of great merit. He has left in Spain a very great number of specimens of his genius, which display the boldness of his design, the facility of his pencil, the purity of his flesh-tints, and knowledge of chiaroscuro. He was a native of Granada, and a contemporary of Velasquez and Pacheco, whom he rivalled without imitating.

CANO, or CANUS, MELCHIOR (1523-1560), a learned Spanish bishop and theologian, who was pupil and successor of Vittoria as professor of theology at Salamanca.

CANOE, a species of boat. In several Eastern languages the word *kan* means something hollow, with a certain degree of strength. Pliny says some Indian reeds are long enough to form a boat for three men between the joints. The English word "canoe" may be defined as a boat propelled by one or more paddles used without a fixed fulcrum on the boat, and therefore invariably with the sitter facing towards the bow. The Venetian gondola and the Maltese boats, and many others are rowed by men who face the bows, but they always have a fixed rest for the rowlock. Canoes are made of various substances. Those of the Esquimaux are of seal-skin stretched over whalebone, and are propelled by the double-bladed paddle, 7 feet long and 6 inches broad, used by one man, whose dress is united with the deck covering, so as to be watertight.

The North American "dug-out" canoe is made from a tree hollowed by fire, while the bark canoes are formed by birch bark sewn together.

For actual speed over a short and straight course the ordinary sculling skiff is superior to the canoe, but for long journeys of more than a week's duration, and in strange rivers, or with frequent portage, rough usage, intricate navigation, or unexpected difficulties, the canoe is found to be much more convenient than the rowing boat. Forty miles a day in lakes can be kept up for weeks together in a travelling canoe, unless against a contrary wind. Fast racing canoes are 20 feet long and 18 inches broad, and attain a speed of 8 miles an hour. Canoes for "upset races" (where the canoeist has to jump out, tow his boat while swimming, and then get in) and for the race "over land and water" are specially

built for their purpose. Other canoes are built chiefly for sailing, and these carry "drop keels," "rockers," and heavy ballast.

CANON, means originally a straight rod or pole, and metaphorically what serves to keep a thing upright or straight, a rule. There are three opinions as to the origin of its application to the writings used by the church. According to Semler, Baur, and others, the word had originally the same sense of list or catalogue — the books publicly read in Christian assemblies. Others, as Steiner, suppose that since the Alexandrian grammarians applied it to collections of old Greek authors as models of excellence or classics, it meant classical (canonical) writings. According to a third opinion, the term included from the first the idea of a regulating principle. This is the more probable, because the same idea lies in the New Testament use of the noun, and pervades its applications in the language of the early Fathers down to the time of Constantine, as Credner has shown.

The two significations of the word are — a rule or fundamental principle, and a collection or list of books that form or contain the rule.

The earliest example of its application to a catalogue of the Old or New Testament books occurs in the Latin translation of Origen's homily on Joshua. The word itself is certainly in Amphilochius, as well as in Jerome and Rufinus.

The individual who first gave public sanction to a portion of the national Jewish literature was Ezra, who laid the foundation of a canon. He was the leader in restoring the theocracy after the exile, "a ready scribe in the law of Moses, who had prepared his heart to seek the law of the Lord and to teach in Israel statutes and judgments." The question how far Ezra was also the redactor of the Pentateuch, or made additions to it, will be discussed in its proper place (see PENTATEUCH). Here it is sufficient to observe that the public authority he conferred on the Law is the first step in the formation of the canon.

After the first collection was made attention was directed to other national documents. Of these the prophetic books were the most conspicuous; and the order of men from whom they came, or whose names they bore, stood out in a favorable light, when looked back at from the restored theocracy, because many of their predictions had been fulfilled. Exhortations and warnings, which had often fallen upon listless ears, had been verified by experience. A desire to gather together the earlier prophetic writings would naturally accompany or follow the zeal displayed in bringing forth the Pentateuch to public view. Hence the historical books of the nation which described the divine guidance of the people, as well as the kings under whom the earliest prophets lived (Joshua — Kings), were first adopted.

This second canon originated with Nehemiah, of whom it is said in the second book of Maccabees, that, when founding a library, "he gathered together the acts of the kings, and the prophets, and the (Psalms) of David, and the epistles of the kings concerning the holy gifts." These words, though somewhat ambiguous, and admitting different explanations, present an historical statement which should not be summarily rejected, as it is by Graetz. "The Acts of the Kings" contained the two books of Kings (including those now called after Samuel), with Joshua and Judges, of which last Ruth was the concluding part; for Joshua was now separate from the Mosaic books, with which it was closely connected at first. This historical portion was the proper continuation of Ezra's canon. The "Prophets" comprehended the four greater and twelve minor ones. Not all the latter, however; for Jonah is of subsequent date. Lamentations were united to Jeremiah as one book. The "Psalms of David" also belong to this

canon, and may have been almost coextensive with the first three divisions of the present book. The epistles of the kings concerning the holy gifts are not extant. They appear to have been the documents of heathen (Persian for the most part) kings favorable to the rebuilding of Jerusalem and its temple. Nehemiah's canon was identical to some extent with the second division of the Biblical books. It wanted Jonah, perhaps Malachi, but it had "the Epistles of the kings." It was larger than the second Hebrew division of the Old Testament, and had probably been preceded by smaller collections of prophetic productions before the captivity. We know that in the captivity itself, and immediately after, older prophecies were edited.

Whether Nehemiah himself collected the books, or whether he merely set the thing on foot and saw that it was carried out by the learned men of the time, can only be conjectured. As he was not a priest or a scribe like Ezra, but a statesman, the latter supposition is the more probable. This collection was highly esteemed; though it did not take equal rank with the first. It was not completed before the close of the 4th century B.C., because the book of Jonah was probably not written till that time. The close of the prophetic canon could not have taken place till some period had elapsed after Malachi,—a period sufficient for the growth of a general consciousness that the prophetic function had ceased with the youngest of the prophets. Besides the historical books which preceded, there were in it four prophetic ones—Jeremiah, Ezekiel, Isaiah, the twelve minor prophets. Ruth belonged to the book of Judges, and Lamentations to Jeremiah; but they were afterwards detached and put into the third division or canon. Definite allusions to this prophetic collection do not occur till the 2d century B.C. Daniel speaks of a passage in Jeremiah being in "the books" or "writings;" and Sirach, both in the prologue and the 49th chapter, presupposes its completion. Such was the second or Nehemiah canon, partly gradual in its formation.

The third canon, in which the other books of the Old Testament were included, was not made at once. Its contents were multifarious, differing widely from one another in age and character—poetical, prophetic, didactic, historical. Such as seemed worthy of preservation, though they had not been included in the second canon, were gathered together during the space of one hundred and fifty years. The oldest part consisted of psalms supposed to belong to David, which were a supplement to those in Nehemiah's collection,—perhaps the last two divisions, with some exceptions (books fourth and fifth). Next to the Psalms were Proverbs, Job, Canticles, which, though non-prophetic, and probably excluded on that account from the sacred canon, must have existed before the exile. Enriched with the latest additions, they survived the national disasters, and claimed a place next to the Psalms. They were but a portion of the literature current in and after the 5th century B.C., as may be inferred from the epilogue to Ecclesiastes and the wisdom of Sirach. The historical work compiled by the chronicle-writer was separated, Ezra being put first as the most important part and referring also to the church of the 6th and 5th centuries, whose history had not been written. The Chronicles themselves were placed last, being considered of less value than the first part, as they contained the summary of a period already described, though with numerous adaptations to post-exile times. The youngest portion consisted of the book of Daniel, not written till the Maccabean period (between 170 and 160 B.C.); and probably of several psalms which were inserted in different places of the collection so as to make the

whole number 150. The list continued open, and no stringent principle guided selection. The character of the collection was somewhat indefinite. It was called *c'tubim*, i. e., writings,—a general epithet suited to the contents.

The earliest attestation of this third canon is that of the prologue to Jesus Sirach, where not only *the law and the prophets* are specified, but "the other books of the fathers," or "the rest of the books." No information is given as to its extent, or the particular books included. They may have been for the most part the same as the present ones. The passage does not show that the third list was closed. The better writings of the fathers, such as tended to learning and wisdom, are not excluded by the definite article. In like manner, neither Philo nor the New Testament gives exact information as to the contents of the division in question. Indeed, several books (Canticles, Esther, Ecclesiastes) are unnoticed in the latter. The argument drawn from Matthew xxiii. 35, that the Chronicles were then the last book of the canon, is inconclusive, as the Zechariah there named was probably different from the Zacharias in 2 Chronicles xxiv. The third canon is not proved to be closed by any of these witnesses, much less by a passage of 2 Maccabees ii. 14, which is sometimes adduced for the purpose.

A more definite testimony respecting the canon is given by Josephus toward the end of the first century A.D. "For we have not an innumerable multitude of books among us, . . . but only twenty-two books, which contain the records of all the past times, which are justly believed to be divine. And of them five belong to Moses. . . . But as to the time from the death of Moses till the reign of Artaxerxes king of Persia, the prophets who were after Moses wrote down what was done in their times in thirteen books. The remaining four books contain hymns to God and precepts for the conduct of human life. It is true our history has been written since Artaxerxes very particularly, but has not been esteemed of the like authority with the former by our forefathers, because there has not been an exact succession of prophets since that time: and how firmly we have given credit to these books of our own nation is evident by what we do; for during so many ages as have already passed, no one has been so bold as either to add anything to them, to take anything from them, or to make any change in them; but it has become natural to all Jews immediately and from their very birth, to esteem these books to contain divine doctrines, and to persist in them, and, if occasion be, willingly to die for them." This list agrees with our present canon, showing that the Palestinian Jews were tolerably unanimous as to the extent of the collection. The thirteen prophets include Job; the four lyric and moral books are Psalms, Proverbs, Ecclesiastes, and Canticles.

The canon, however, was not considered to be closed in the 1st century before and the 1st after Christ. There were doubts about some portions. The book of Ezekiel gave offence, because some of its statements seemed to contradict the law. Doubts about others were of a more serious nature,—about Ecclesiastes, the Canticles, Esther, and the Proverbs. The first was impugned because it had contradictory passages and a heretical tendency; the second, because of its worldly and sensual tone; Esther for its want of religiousness; and Proverbs on account of inconsistencies. This scepticism went far to procure the exclusion of the suspected works from the canon, and their relegation to the class of the *genuzim*. But it did not prevail. Hananiah, son of Hezekiah, son of Garon, about 32 B.C., is said to have reconciled the contradictions and allayed the doubts. But these traces of resistance to the fixity of the canon

were not the last. They reappeared about 65 A.D., as we learn from the Talmud, when the controversy turned mainly upon the canonicity of Ecclesiastes, which the school of Shammai, who had the majority, opposed; so that the book was probably excluded. The question emerged again at a later synod at Jabneh or Jamnia, when R. Eleaser ben Asaria was chosen patriarch, and Gamaliel the second deposed. Here it was decided, not unanimously, however, but by a majority of Hillelites, that Ecclesiastes and the Song of Songs "pollute the hands," *i.e.*, belong properly to the Hagiographa. This was about 90 A.D. Thus the question of the canonicity of certain books was discussed at two synods. The canon was virtually settled at Jamnia, where was confirmed what R. Akiba said of the Canticles in his usual extravagant way: "No day in the whole history of the world is of so much worth as the one in which the Song of Songs was given to Israel; for all the Scriptures are holy; but the Song of Songs is most holy." As the Hagiographa were not read in public, with the exception of Esther, opinions of the Jewish rabbins might still differ about Canticles and Ecclesiastes, even after the synod at Jamnia.

Jewish literature began to degenerate after the captivity and it continued to do so. It leant upon the past more and more, having an external and formal character with little of the living soul. The independence of their religious literature disappeared with the national independence of the Jews; and the genius of the people was too exclusive to receive much expansion from the spirit of nations with whom they came in contact. In such circumstances, amid the general consciousness of present misfortune, which the hope of a brighter future could not dispel, and regretful retrospects of the past tinged with ideal splendor, the exact time of drawing a line between books that might be included in the third division of the canon must have been arbitrary. In the absence of a normal principle to determine selection, the productions were arbitrarily separated. Not that they were badly adjusted. On the contrary, the canon as a whole was wisely settled. Yet the critical spirit of learned Jews in the future could not be extinguished by anticipation. The canon was not really settled for all time by a synodical gathering at Jamnia; for Sirach was added to the Hagiographa by some rabbins about the beginning of the 4th century; while Baruch circulated long in Hebrew, and was publicly read on the day of atonement in the 3d century according to the apostolic constitutions. These two books were in high repute for a considerable time, possessing a kind of canonical credit even among the learned Jews of Palestine. Rab, Jochanan, Elasar, Rabba bar Mare, occasionally refer to Sirach in the way in which the *c'tubim* were quoted; the writer of Daniel used Baruch; and the translator of Jeremiah put it into Greek.

With the formation of the canon we may now connect the labors of the Great Synagogue, so far as Jewish authorities present credible information regarding it. The Talmudic and other accounts are legendary in part, and also incorrect. Little as is known of its members or doings, some idea may be gathered from scattered notices about it as well as from analogy.

The oldest notice of the Great Synagogue is that in the Pirke Aboth, about 200 A.D., where it is said that "Moses received the law from Mount Sinai and delivered it to Joshua, Joshua to the elders, the elders to the prophets, and the prophets delivered it to the men of the Great Synagogue. These last spake three words: Be cautious in pronouncing judgment; make many disciples; put a hedge about the law." In Baba Bathra their Biblical labors are somewhat minutely described: "Moses wrote his book, and the section of Balaam, and

Job. Joshua wrote his book and eight verses in the law. Samuel wrote his book and Judges and Ruth. David wrote the psalms of the ten elders, &c., &c. Jeremiah wrote his book, Kings, and Lamentations. Hezekiah and his colleagues wrote Isaiah, Proverbs, Canticles, and Coheleth. The men of the Great Synagogue wrote Ezekiel, the twelve prophets, Daniel, and Ezra. Ezra wrote his book and the genealogy in Chronicles down to himself." It is not clear what is meant by "writing" in the latter part of the statement. It means *composition* in the first part, as the context undoubtedly shows; and that is Rashi's explanation of the verb throughout. Perhaps, however, when used of the Great Synagogue it means no more than *edit*. That body put into their present form and received into the national library the works specified. Late writers, such as Abarbanel, Abraham ben David, ben Maimon, &c., record that Ezra was president, and that it consisted of 120 members, including Haggai, Zechariah, Malachi, &c.; but the names and number are evidently conjectural and incorrect. These late notices deserve little credit.

As Ezra is called "a ready scribe," and his labors in connection with the law were important, he may have organized a body of scribes who should work in harmony, attending, among other concerns, to the perservation and correction of the national literature. It must be admitted, however, that the priests enumerated in Nehemiah x. 1, &c., and the "company of scribes" in 1 Maccabees vii. 12 (comp. ii. 42), afford no basis for such a college. Still, there is nothing improbable in the hypothesis. A succession of scribes and priests, if not conjointly, at least in harmony, continued to labor till the corporation ceased to exist with Simon the Just, who is mentioned as the last belonging to it, *i.e.*, from 444 B.C. till about 200. What they did can only be inferred from the proceedings of Ezra himself, and from the prevailing views as well as wants of the times they lived in. Those who began with Ezra, seeing what he did, would naturally follow his example, and would not scruple, if it seemed best, to revise the text in substance; but their chief work related to the form of the text. After the last canon was made, about a century or more anterior to the Christian era, the text was not considered inviolate by the learned Jews; it received modifications and interpolations long after. The process of redaction had not ceased before the time of Christ. This was owing, among other causes, to the state of parties among the Jews, as well as the intrusion of Greek literature and culture, whose influence the Palestinian Jews themselves were not able to withstand altogether.

The canon did not include all the national literature; and if it be asked on what principle books were admitted, it is not easy to answer. The higher the value of the writings, the more conducive to the religious life and advancement of the people, they were, the more readily accepted. Real or apparent importance determined their adoption. In judging of their value different considerations weighed. Some were regulative in the department of the legal and ethical; the prophetic claimed a divine origin; the lyric or poetic touched and elevated the ideal faculty on which religion acts. The nation, early imbued with the theocratic spirit, and believing itself the chosen of God, was favorably inclined toward documents in which that stand-point was assumed. The names of men renowned for their piety, wisdom, or knowledge of divine things, which some books bore, ensured their admission. A variety of considerations contributed to the gradual formation of the canon; and the best part of the national literature was incorporated.

Of the three divisions, "The Law" or Pentateuch was most highly venerated by the Jews. It was the first

translated into Greek, and in Philo's view was inspired in a way peculiar to itself. "The Prophets," or second division, occupied a somewhat lower place in their estimation, but were read in the public services as the law had been before. The "*c'thubim*," or third division, was not looked upon as equal to the Prophets in importance; only the five Megiloth were publicly read. The three parts of the collection present the three gradations of sanctity which the books assumed successively in Israelite estimation. A certain reverence was attached to all as soon as they were made canonical; but the reverence was not of equal height, and the supposed authority was proportionately varied. The consciousness of prophetism being extinct soon after the return from Babylon was a genuine instinct. With the extinction of the Jewish state the religious spirit almost evaporated. The idealism which the old prophets proclaimed in contrast with the symbolic religion of the state gave place to forms and an attachment to the written law. Religion came to be a thing of the understanding, the subject of learned treatment; and its essence was reduced to dogmas or precepts. Thus it ceased to be spiritual, or a thing in which the heart had free scope for its highest aspirations. The narrow prophetism that appeared after the restoration was little more than an echo of the past, falling in with an external and written legalism. The literature of the people deteriorated in quality, and prophecy became apocalypse.

When the three divisions were united, the ecclesiastical respect which had gathered round the law and the prophets from ancient times began to be transferred to the *c'thubim*. A belief in their sanctity increased apace in the 1st century before the Christian era, so that *sacredness* and *canonicity* were almost identical. The doubts of individuals, it is true, were still expressed respecting certain books of the *c'thubim*, but they had no perceptible effect upon the current opinion. The sanctity attaching to the last division as well as the others did not permit the total displacement of any part.

The origin of the threefold division of the canon is not a reflection of the different stages of religious development through which the nation passed, as if the foundation were the Law, the ulterior tendency in its objective aspect the Prophets, and its subjective aspect the Hagiographa. The books of Chronicles and others refute this arbitrary conception. The triplicity lies in the manner in which the books were collected. Men who belonged to different periods and possessed different degrees of culture worked successively in the formation of the canon. It resulted out of the circumstances in which it was made, and the subjective ideas of those who made it.

The places of the separate books within the first division or *Torah* were determined by the succession of the historical events narrated. The second division naturally begins with Moses' successor, Joshua. Judges, Samuel, and Kings follow according to the regular chronology. To the former prophets, as Joshua to Kings were called, the latter were attached, Isaiah, Jeremiah, and Ezekiel,—succeeded by the twelve minor prophets, arranged for the most part according to their times, though the length of individual prophecies also influenced their position, together with the similarity of contents. The arrangement of books in the third division depended on their age, character, and authors. The Psalms were put first, because David was supposed to be the author of many, and on account of their intrinsic value in promoting the religious life of the people. After the Psalms came the three poetical works attributed to Solomon, with the book of Job among them,—Proverbs, Job, Canticles, Ecclesiastes. The

book of Esther followed, since it was intended to further the observance of the Purim feast; with the late book of Daniel, which had some affinity to Esther in its relation to heathenism and to Greek life. To Ezra and Nehemiah, which were adopted before the other part of the chronicle-book and separated from it, were added the so-called Chronicles. Such was the original succession of the third division or *c'thubim*; but it did not remain unaltered. For the use of the synagogue the five Megiloth were put together, so that Ruth (originally the last part of Judges), and the Lamentations (appended at first to Jeremiah's prophecies) were taken out of the second and put into the third canon. This caused a separation of Canticles and Ecclesiastes.

The Samaritan canon consists of the Pentateuch alone. This restricted collection is owing to the fact that, when the Samaritans separated from the Jews and began their worship on Gerizim, no more than the Mosaic writings had been invested by Ezra with canonical dignity. The hostile feeling between the rivals hindered the reception of books subsequently canonized. The idea of their having the oldest and most sacred part in its entirety satisfied their spiritual wants. Some have thought that the Sadducees, who already existed as a party before the Maccabean period, agreed with the Samaritans in rejecting all but the Pentateuch; yet this is doubtful. It is true that the Samaritans themselves say so; and that some of the church fathers, Origen, Jerome, and others agree; but little reliance can be put on the statement. The latter, perhaps, confounded the Samaritans and Sadducees. It is also noteworthy that Christ, in refuting the Sadducees, appeals to the Pentateuch alone; but the conclusion that he did so because of their admitting no more than that portion does not follow.

The Alexandrian canon differed from the Palestinian. The Greek translation commonly called the Septuagint contains some later productions which the Palestinian Jews did not adopt, not only from their aversion to Greek literature generally, but also from the recent origin of the books, and perhaps their want of prophetic sanction. The closing line of the third part in the Alexandrian canon was more or less fluctuating—capable of admitting recent writings appearing under the garb of old names and histories, or embracing religious subjects; while the Palestinian collection was pretty well determined, and all but finally settled. The judgment of the Alexandrians was freer than that of their brethren in the mother country. They had even separated in a measure from the latter, by erecting a temple at Leontopolis; and their enlargement of the canon was another step of divergence. The influence of Greek learning and philosophy led to a more liberal treatment of Jewish books. Nor had they the criterion of language for the separation of canonical and uncanonical; both classes were before them in the same tongue. The enlarged canon was not formally sanctioned; it had not the approval of the Sanhedrim; yet it was to the Alexandrians what the Palestinian one was to the Palestinians. If Jews who were not well acquainted with Hebrew used the apocryphal and canonical books alike, it was a matter of feeling and custom; and if those who knew the old language better adhered to the canonical one more closely, it was a matter of tradition and language. The former set little value on the prevalent consciousness of the race that the spirit of prophecy was extinct; their view of the Spirit's operation was larger. The latter clung to the past with all the more tenacity that the old life of the nation had degenerated. The identity of the Palestinian and Alexandrian canons must be abandoned.

It is said, indeed, that Philo neither mentions nor

quotes the Greek additions; but neither does he quote several canonical books. According to Eichhorn, no fewer than eight of the latter are unnoticed by him. Besides, he had peculiar views of inspiration, and quoted loosely from memory. Believing as he did in the inspiration of the Greek version as a whole, it is difficult to think that he made a distinction between the different parts of it. The argument for the identity of the two canons deduced from 4 Esdras xiv. 44, &c., as if the twenty-four open books were distinguished from the other writings dictated to Ezra, is of no force, both because the reading is uncertain and, even if seventy be distinguished from twenty-four in the passage, verisimilitude required that an Egyptian Jew himself must make Ezra conform to the old Palestinian canon. It is also alleged that the grandson of Jesus Sirach, who translated his grandfather's work during his abode in Egypt, knew no difference between the Hebrew and Greek canon, though he speaks of the Greek version; he speaks as a Palestinian, without having occasion to allude to the difference between the canonical books of the Palestinian and Egyptian Jews. The latter may have reckoned the apocryphal writings in the third division; and therefore the translator of Jesus Sirach could recognize them in the ordinary classification. The mention of three classes is not opposed to their presence in the third. The general use of an enlarged canon in Egypt cannot be denied, though it was somewhat loose, was not regarded as a completed collection, and wanted express rabbinical sanction. The very way in which apocryphal are inserted among canonical books in the Alexandrian canon, shows the equal rank assigned to both. Esdras first and second succeed the Chronicles; Tobit and Judith are between Nehemiah and Esther; the Wisdom of Solomon and Sirach follow Canticles; Baruch succeeds Jeremiah; Daniel is followed by Susanna and other productions of the same class; and the whole closes with the three books of Maccabees. Such is the order in the Vatican MS.

The threefold division of the canon, indicating three stages in its formation, has continued. Josephus, indeed, gives another, based on the nature of the separate books, not on the MSS. We learn nothing from him of its history, which is somewhat remarkable, considering that he did not live two centuries after the last work had been added. The account of the canon's final arrangement was unknown to him. The number of the books was variously estimated. Josephus gives twenty-two, which was the usual number among Christian writers in the 2d, 3d, and 4th centuries, having been derived from the letters of the Hebrew alphabet. Origen, Jerome, and others have it. It continued longest among the teachers of the Greek Church, and is even in Nicephorus's stichometry. The enumeration in question has Ruth with Judges, and Lamentations with Jeremiah. In Epiphanius the number twenty-seven is found, made by taking the alphabet enlarged with the five final letters, and dividing Samuel, Kings, and Chronicles into two books each. The Talmud has twenty-four, which originated in the Greek alphabet, and probably proceeded from Alexandria. After the Pentateuch, and the former prophets, which are in the usual order, it gives Jeremiah as the first of the later, succeeded by Ezekiel and Isaiah with the twelve minor prophets. The Talmud knows no other reason for such an order than that it was made according to the contents of the prophetic books, not according to the times of the writers. This solution is unsatisfactory. It is more probable that chronology had to do with the arrangement. The Talmudic order of the Hagiographa is Ruth, Psalms, Job, Proverbs, Ecclesiastes, Canticles, Lamentations, Daniel, Esther, Ezra, Chronicles. Here Ruth precedes the

Psalter, coming as near the former prophets as possible; for it properly belongs to them, the contents associating it with the Judges' time. The Talmudic order is that usually adopted in German MSS.

The Masoretic arrangement differs from the Talmudic in putting Isaiah before Jeremiah and Ezekiel. The Hagiographa are—Psalms, Proverbs, Job, Canticles, Ruth, Lamentations, Ecclesiastes, Esther, Daniel, Ezra (with Nehemiah), Chronicles. MSS. often differ arbitrarily, because transcribers did not consider themselves bound to any one arrangement. According to some, a very old testimony to the commencing and concluding books of the third division is given by the New Testament (Luke xxiv. 44; Matthew xxiii. 35), agreeably to which the Psalms were first and the Chronicles last; but this inconclusive.

The Alexandrian translators, as we have seen already, placed the books differently from the Palestinian Jews. In their version Daniel comes after Ezekiel, so that it is put beside the greater prophets. Was this done by Jews or Christians? Perhaps by the latter, who put it between the greater and lesser prophets, or, in other words, out of the third into the second division, because of dogmatic grounds, and so effaced a trace of the correct chronology. Little importance, however, can be attached to the order of the books in the Septuagint, because the work was done at different times by different persons. But whatever may have been the arrangement of the parts when the whole was complete, we know that it was disturbed by Protestants separating the apocryphal writings and putting them all together.

The first Christians relied on the Old Testament as their chief religious book. To them it was of divine origin and authority. The New Testament writings came into gradual use by the side of the older Jewish documents, according to the times in which they appeared and the reputed names of the authors.

When Marcion came from Pontus to Rome (144 A.D.), he brought with him a Scripture collection consisting of ten Pauline epistles. Those addressed to Timothy and Titus, with the epistle to the Hebrews, were not in it. The gospel of Marcion was Luke's in an altered state. From this and other facts we conclude that external parties were the first who carried out the idea of collecting Christian writings, and of putting them either beside or over against the sacred books of the Old Testament, in support of their systems. As to Basilides (125 A.D.), his supposed quotations from the New Testament in Hippolytus are too precarious to be trusted. It is inferred from statements in Origen and Jerome that he had a gospel of his own somewhat like Luke's, but extra-canonical. His son Isadore and succeeding disciples used Matthew's gospel. Jerome says that Marcion and Basilides denied the Pauline authorship of the epistle to the Hebrews and the pastoral ones. It is also doubtful whether Valentinus's (140-166) alleged citations from the New Testament can be relied upon. The passages of this kind ascribed to him by the fathers belong in a great measure to his disciples; and Henrici has not proved his position that he used John's gospel. But his followers, including Ptolemy (180 A.D.) and Heracleon (185-200), quote the gospels and other portions of the New Testament. From Hippolytus's account of the Ophites, Peratæ, and Sethians, we infer that the Christian writings were much employed by them. An apocryphal work they rarely cite. More than 166 citations from the New Testament have been gathered out of their writings. We may admit that these Ophites and Peratæ were of early origin, the former being the oldest known of the Gnostic parties; but there is no proof that the acquaintance with the New Testament which Hippolytus attributes to them

belongs to the first rather than the second half of the 2d century. The early existence of the sect does not show an early citation of the Christian books by it, especially of John's gospel; unless its primary were its last stage. Later and earlier Ophites are not distinguished in the *Philosophumena*. Hence there is a presumption that the author had the former in view, which is favored by no mention of them occurring in the "Adversus omnes Hæreses" usually appended to Tertullian's *Præscriptiones Hæreticorum*, and by Irenæus's derivation of their heresy from that of Valentinus. The latter father does not even speak of the Peratæ. Clement of Alexandria is the first who alludes to them. The early heretics were desirous of confirming their peculiar opinions by the writings current among Catholic Christians, so that the formation of a canon by them began soon after the commencement of the 2d century, and continued till the end of it,—contemporaneously with the development of a catholic church and its necessary adjunct a catholic canon.

No New Testament canon, except a partial and unauthoritative one, existed till the latter half of the 2d century, that is, till the idea of a catholic church began to be entertained. The Ebionites or Jewish Christians had their favorite gospels and Acts. The gospel of Matthew was highly prized by them, existing as it did in various recensions. Other documents, such as the Revelation of John, and the Preaching of Peter, were also in esteem. Even so late as 170-175, Hegesippus, a Jewish Christian, used the gospel according to the Hebrews and despised Paul's writings, in conformity with the leading principle of the party to which he belonged, viz., the identity of Jesus's words with the Old Testament. The Clementine Homilies (161-180) used the four canonical gospels, even the fourth, which they assign to the apostle John. The gospel according to the Egyptians was also employed. Paul's epistles were rejected, of course, as well as the Acts; since the apostle of the Gentiles was pointed at in Simon Magus, whom Peter refutes. It is, therefore, obvious that a collection of the New Testament writings could make little progress among the Ebionites of the 2d century. Their reverence for the Law and the Prophets hindered another canon. Among the Gentile Christians the formation of a canon took place more rapidly, though Judaic influences retarded it even there. After Paul's epistles were interchanged between churches a few of them would soon be put together. A collection of this kind is implied in 2 Peter iii. 16.

The conception of a catholic *canon* was realized about the same time as that of a catholic *church*. One hundred and seventy years from the coming of Christ elapsed before the collection assumed a form that carried with it the idea of *holy* and *inspired*. The way in which it was done was by raising the apostolic writings higher and higher till they were of equal authority with the Old Testament, so that the church might have a rule of appeal. The Old Testament was not brought down to the New; the New was raised to the Old. It is clear that the earliest church fathers did not use the books of the New Testament as sacred documents clothed with divine authority, but followed for the most part, at least till the middle of the second century, apostolic tradition orally transmitted. They were not solicitous about a canon circumscribed within certain limits.

In the second half, then, of the second century there was a canon of the New Testament consisting of two parts called *the gospel* and *the apostle*. The first was complete, containing the four gospels alone; the second, which was incomplete, contained the Acts of the Apostles and epistles, i. e., thirteen letters of Paul, one of Peter, one of John, and the Revelation. How and

where this canon originated is uncertain. Its birth-place may have been Asia Minor, like Marcion's; but it may have grown about the same time in Asia Minor, Alexandria, and Western Africa. At all events, Irenæus, Clement of Alexandria, and Tertullian speak of its two parts; and the three agree in recognizing its existence.

The exact principles that guided the formation of a canon in the earliest centuries cannot be discovered. Definite grounds for the reception or rejection of books were not very clearly apprehended. The choice was determined by various circumstances, of which apostolic origin was the chief, though this itself was insufficiently attested, for, if it be asked whether all the New Testament writings proceeded from the authors whose names they bear, criticism cannot reply in the affirmative. The example and influence of churches to which the writings had been first addressed must have acted upon the reception of books. Above all, individual teachers here and there saw the necessity of meeting heretics with their own weapons, in their own way, with *apostolic records* instead of oral tradition. The circumstances in which the orthodox were placed led to this step, effecting a bond of union whose need must have been felt while each church was isolated under its own bishop and the collective body could not take measures in common. Writings of more recent origin would be received with greater facility than such as had been in circulation for many years, especially if they professed to come from a prominent apostle. A code of apostolic writings, divine and perfect like the Old Testament, had to be presented as soon as possible against Gnostic and Manichæan heretics, whose doctrines were injurious to objective Christianity; while the multiplication of apocryphal works threatened to overwhelm genuine tradition with a heap of superstition.

When it is asked, to whom do we owe the canon? the usual answer is, to the Church, which is hardly correct. The Church Catholic did not exist till after the middle of the 2d century. The preservation of the early Christian writings was owing, in the first instance, to the congregations to whom they were sent, and the neighboring ones with whom such congregations had friendly connection. The care of them devolved on the most influential teachers,—on those who occupied leading positions in the chief cities, or were most interested in apostolic writings as a source of instruction. The Christian books were mostly in the hands of the bishops. In process of time the canon was the care of assemblies or councils. But it had been made before the first general council by a few leading fathers towards the end of the 2d century in different countries. The formation of a Catholic Church and of a canon was simultaneous. The circumstances in which the collection originated were unfavorable to the authenticity of its materials; for tradition had been busy over them and their authors. Instead of attributing the formation of the canon to the Church, it would be more correct to say that the important stage in it was due to three teachers, each working separately and in his own way, who were intent upon the creation of a Christian society which did not appear in the apostolic age,—a visible organization united in faith,—where the discordant opinions of apostolic and sub-apostolic times should be finally merged. The canon was not the work of the Christian Church so much as of the men who were striving to form that Church, and could not get beyond the mould received by primitive Christian literature. The first mention of a "Catholic Church" occurs in *The Martyrdom of Polycarp*, an epistle that cannot be dated earlier than 160 A. D., and may perhaps be ten years later. But though the idea be there and in the

Ignatian epistles, its established use is due to Irenæus, Tertullian, and Cyprian.

Origen was the first who took a somewhat scientific view of the relative value belonging to the different parts of the biblical collection. His examination of the canon was critical. Before him the leading books had been regarded as divine and sacred, the source of doctrinal and historic truth; and from this stand-point he did not depart. With him ecclesiastical tradition was a prevailing principle in the recognition of books belonging of right to the New Testament collection. He was also guided by the inspiration of the authors,—a criterion arbitrary in its application, as his own statements show. In his time, however, the collection was being gradually enlarged,—his third class, *i.e.*, the *mixed*, approaching reception into the first. But amid all the fluctuations of opinion to which certain portions of the New Testament were subject, and the unscientific procedure both of fathers and churches in the matter, though councils had not met to discuss it, and vague tradition had strengthened with time, a certain spiritual consciousness manifested itself throughout the East and West in the matter of the canon. Tolerable unanimity ensued. The result was a remarkable one, and calls for our gratitude. Though the development was pervaded by no critical or definite principle, it ended in a canon which has maintained its validity for centuries.

It is sometimes said that the history of the canon should be sought from definite catalogues, not from isolated quotations. The latter are supposed to be of slight value, the former to be the result of deliberate judgment. This remark is more specious than solid. In relation to the Old Testament, the catalogues given by the fathers, as by Melito and Origen, rest solely on the tradition of the Jews, apart from which they have no independent authority. As none except Jerome and Origen knew Hebrew, their lists of the Old Testament books are simply a reflection of what they learned from others. If they deviate in practice from their masters by quoting as Scripture other than the canonical books, they show their judgment over-riding an external theory. The very men who give a list of the Jewish books evince an inclination to the Christian and enlarged canon. So Origen says, in his *Epistle to Africanus*, that “the churches use Tobit.” In explaining the prophet Isaiah, Jerome employs Sirach vi. 6, in proof of his view, remarking that the apochryphal work is in the Christian catalogue. In like manner Epiphanius, in a passage against Aetius, after referring to the books of Scripture, adds, “as well as the books of Wisdom, *i.e.*, the Wisdom of Solomon and Jesus, son of Sirach; finally, all the other books of Scripture.” In another place he gives the canon of the Jews historically, and excludes the apochryphal Greek books; but here he includes some of the latter. We also learn from Jerome that Judith was in the number of the books reckoned up by the Nicene Council. Thus the fathers who give catalogues of the Old Testament show the existence of a Jewish and a Christian canon in relation to the Old Testament;—the latter wider than the former, their private opinion more favorable to the one, though the other was historically transmitted. In relation to the New Testament, the synods which drew up lists of the sacred books show the opinion of some leading father like Augustine, along with what custom had sanctioned. In this department no member of the synod exercised his critical faculty; a number together would decide such questions summarily. Bishops proceed in the track of tradition or authority.

It will now be convenient to treat of the two Testaments together, *i.e.*, the canon of the Bible. The canons of both have been considered separately to the

end of the third century; they may be henceforward discussed together. We proceed, therefore, to the Bible-canon of the fourth century, first in the Greek Church and then in the Latin.

Notwithstanding the numerous endeavors both in the East and West to settle the canon during the 4th and 5th centuries, it was not finally closed. The doubts of individuals were still expressed, and succeeding ages testify to the want of universal agreement respecting several books. The question, however, was *practically* determined. No material change occurred again in the absolute rejection or admission of books. With some fluctuations, the canon remained very much as it was in the 4th and 5th centuries. Tradition had shaped and established its condition. General usage gave it a permanency which it was not easy to disturb.

Luther's judgment respecting some of the New Testament books was freer than most Protestants now are disposed to approve. He thought the epistle to the Hebrews was neither Paul's nor an apostle's, but proceeded from an excellent and learned man who may have been the disciple of apostles. He did not put it on an equality with the epistles written by apostles themselves. The Apocalypse he considered neither apostolic nor prophetic, but put it almost on the same level with the 4th book of Esdras, which he spoke elsewhere of tossing into the Elbe. This judgment was afterwards modified, not retracted. James' epistle he pronounced unapostolic. It was quite an epistle of straw. In like manner, he did not believe that Jude's epistle proceeded from an apostle. Considering it to have been taken from 2 Peter, and not well extracted either, he put it lower than the supposed original. The Reformer, as also his successors, made a distinction between the books of the New Testament similar to that of the Old,—the *generally received* (homologoumena) and *controverted* books (antilegomena); but the Calvinists afterwards obliterated it, as the Roman Catholics at the Council of Trent did with the Old Testament. The epistle to the Hebrews, those of Jude and James, with the Apocalypse, belong to the latter class. Luther assigned a greater or less value to the separate writings of the New Testament, and left every one to do the same. He relied on their internal value more than tradition,—taking the “Word of God” in a deeper and wider sense than its coincidence with the bible.

Bodenstein of Carlstadt examined the question of canonicity more thoroughly than any of his contemporaries, and followed out the principle of private judgment in regard to it. He divides the biblical books into three classes—1. Books of the highest dignity, viz., the Pentateuch and the Gospels; 2. Books of the second dignity, *i.e.*, the works termed prophetic by the Jews, and the fifteen epistles universally received; 3. Books of the third and lowest authority, *i.e.*, the Jewish Hagiographa and the seven antilegomena epistles of the New Testament. Among the Apocryphi he makes two classes—such as are out of the canon of the Hebrews yet hagiographical (Wisdom, Ecclesiasticus, Judith, Tobit, the two Maccabees), and those that are clearly apochryphal and to be rejected (third and fourth Esdras, Baruch, Prayer of Manasseh, a good part of the third chapter of Daniel, and the last two chapters of Daniel). Zwingli asserts that the Apocalypse is not a biblical book.

Ecclampadius says—“We do not despise Judith, Tobit, Ecclesiasticus, Baruch, the last two Esdras, the three Maccabees, the last two chapters of Daniel, but we do not attribute to them divine authority with those others.” As to the books of the New Testament he would not compare the Apocalypse, James, Jude, 2 Peter, 2 and 3 John with the rest.

Calvin did not think Paul to be the author of the epistle to the Hebrews, nor 2 Peter to have been written by Peter; but both in his opinion are canonical.

The later Helvetic Confession speaks of the Apocryphal books as read in the churches, but not used as authoritative in matters of faith.

The Gallic Confession makes a distinction between canonical and other books, the former being the rule and norm of faith, not only by the consent of the Church, but much more by the testimony and intrinsic persuasion of the Spirit, by whose suggestions we are taught to distinguish them from other ecclesiastical books which, though useful, are not of the kind that any article of faith can be constituted by them.

The Belgic Confession makes a distinction between the sacred and apocryphal books. The former may be read by the Church, but no doctrine can be derived from them. In the list of New Testament books given there are fourteen epistles of Paul.

The Waldensian canon, in which the canonical are carefully separated from the apocryphal books, is not of the date 1120, but is a later document derived from or made by a Protestant after 1532. It is not genuine.

The canon of the Anglican Church (1562), given in the sixth Article of Religion, defines holy Scripture to be "those canonical books of the Old and New Testament, of whose authority was never any doubt in the Church." After giving the names and number of the canonical books the article prefaces the apocryphal ones with, "And the other books (as Hierome saith) the Church doth read for example of life and instruction of manners; but doth it not apply to them to establish any doctrine. Such are these following," &c., &c. At the end it is stated that "all the books of the New Testament, as they are commonly received, we do receive and account them canonical." The article is ambiguous. If the canonical books enumerated are those meant in the phrase "of whose authority was never any doubt in the Church," the statement is incorrect. If a distinction is implied between the canonical books and such canonical ones as have never been doubted in the Church, the meaning is obscure. In either case the language is not explicit.

The Westminster Confession of Faith gives a list of all the books of the Old and New Testaments as the Word of God written,—adding that those called the Apocrypha are not of divine inspiration, and no part of the canon, of no authority in the Church, nor to be approved or made use of otherwise than human writings.

The Roman Catholic canon was finally determined at the Council of Trent (1546), which adopted all the books in the Vulgate as sacred and canonical without distinction. But 3 and 4 Esdras, 3 Maccabees, and the Prayer of Manasseh were not included,—though the first and last appeared in the original Clementine edition of 1592, not however in the preceding one of Sixtus (1590). A council at Florence in 1441 had set the example, which was followed at Trent. But this stringent decree did not prevent individual Catholics from making a distinction between the books, in assuming a first and second canon, or proto-canonical and deutero-canonical books,—as did Sixtus Senensis, B. Lamy, Anton a matre Dei, Jahn, and others,—though it is hardly consistent with orthodox catholicism or the view of those who passed the decree. When the writings are said to be of different authority—some more, others less—the intent of the council is violated. The Vatican council (1870) confirmed the Tridentine decree respecting the canon.

The Greek Church, after several ineffectual attempts to uphold the old distinction between the canonical and ecclesiastical books by Metrophanes Critopulus, patriarch of Alexandria in 1625, and Cyril Lucaris, patriarch of

Constantinople († 1638), came to the same decision with the Romish, and canonized all the Apocrypha. This was done at a Jerusalem synod under Dositheus in 1672.

Semler († 1791) was the first scholar who set himself to correct the prevailing ideas respecting the canon.

We observe in conclusion that the canonical authority of Scripture does not depend on the church or its councils. The primitive church may be cited as a witness for it; that is all. Canonical authority lies in the Scripture itself; it is inherent in the books so far as they contain a revelation or declaration of the divine will. Hence there is truth in the statement of old theologians that the authority of Scripture is from God alone. The canonicity of the books is a distinct question from that of their authenticity. The latter is a thing of historic criticism, the former of doctrinal belief.

CANON, in Music (from the Gr. *kanōn*, a rule), is the species of imitation most strictly according to rule. The melody given out by one part is repeated note for note by the successive parts which follow at any interval of time and position in the scale. When produced between two parts it is called "two in one," when between three, "three in one," at the octave, fifth, or any other interval.

CANON (sometimes spelled canyon; Span. a cannon, tube, gorge), the name given to a deep gorge or ravine between high precipitous cliffs.

CANON, a person who possesses a prebend, or revenue, allotted for the performance of divine service in a cathedral or collegiate church.

CANON LAW. The law that is embodied in the *Corpus Juris Canonici* is termed the CANON LAW. The rules enacted by the early church for its relations with the secular power, its own internal administration, or the conduct of its members, were called canons, in contradistinction on the one hand to its articles of doctrine, and on the other to the enactments of the civil lawgiver. Though at first applied only to the ordinances of an assembly of the church, the term canon came to be extended to include opinions of the fathers and decretals of the popes. Any collection of such laws was styled *Jus Canonicum*, a name which ultimately came to be confined to the collection par excellence, the *Corpus Juris Canonici*. Canon law must not be confounded with ecclesiastical law (*Jus Ecclesiasticum*). The former has the church for its source; the latter has the church for its subject. During the growth of the canon law the church extended her influence into all departments of life. Churchmen filled high offices of state and performed the duties of practical lawyers, while prelates often exercised civil jurisdiction over a considerable tract of country. Hence the legislation of the church embraced many subjects which properly belonged to the domain of municipal law. Ecclesiastical law on the other hand derives its binding authority solely from the state, and treats of the church as a religious institution. But its principles cannot be properly understood without a knowledge of the canon law, on which it is largely based.

In the domain of public law the influence of the church was conspicuous. She may be said to have originated modern international law. The ancient Romans regarded all foreigners as *hostes*. Christianity inculcated the principle of the brotherhood of nations. The popes acted as arbitrators between prince and prince, and between prince and people. They protected the weak against the strong, and right against might. The principle grew up that international questions should be decided according to law and Christian morality, and that war, when inevitable, should be conducted according to recognized rules laid down in the interests of humanity. The system of church administration served as

a model for that of the state, which in mediæval times was frequently controlled by ecclesiastics. The constitutional duties of a sovereign to his people were boldly asserted by the church. Kings were taught that there were obligations for discharging which they were responsible to God, and that if these were neglected their subjects might be absolved from their allegiance. In after times the enemies of the church borrowed some of their most effective weapons from her own armory. The writers on the law of nature and of nations, who headed the rebellion against the encroachments of ecclesiastical jurisdiction, adopted many principles which are to be found in the *Corpus Juris Canonici*, where we may also trace the germs of some leading doctrines of the French Revolution.

The canon law suited the civilization of the Middle Ages. It was natural that a system, claiming to regulate the most important concerns of practical life, administered by courts which, though belonging to different nations, were under the control of one central authority, and developed under the direction of a succession of able legislators, such as Hildebrand and Innocent III., should take the lead in forming the character and reconciling the conflicting interests of the rising nationalities. The canon law was not so much an independent system of law as a method of selecting what was best from the existing systems, and transforming it, by the help of Christian morality and feeling, into one homogeneous, eclectic whole. Much of the Roman element in the common laws of Europe at the present day has descended indirectly through the canon law, though modern jurists are too apt to ignore this and express their obligations to the ancient sources alone.

The decline of the canon law kept pace with that of the church from which it sprang. The strife of popes and antipopes, the increased strength of national feeling prompting the prelates to take their sovereign's part in his quarrels with the papacy, the arrogance of the ecclesiastical courts, the Reformation, the French Revolution, in short, all those causes that weakened the church's power and influence, were prejudicial to the authority of the canon law. And now that every country in Europe possesses, if not a code, at all events a matured system of national law, the *Corpus Juris Canonici* possesses little more than an historical and scientific interest.

The Canon Law is still the common law of both sections of the Christian church of Germany, and in purely religious and ecclesiastical questions affecting their internal affairs it is applicable, so far as not altered by modern church standards. Such are, for the Roman Catholics, the canons of the Tridentine (1545-1563) and Vatican (1869) councils, and the various concordats with the temporal power; for the Protestants, the evangelical confessions (Augsburg, &c.) and the *Conclusa Corporis Evangelicorum* (1653-1806). The relations of the different churches with the state are regulated exclusively by the law of the land. In a question of a private law the canon law has no validity as an independent source. Till the end of last century both the civil and canon laws were by custom received as authoritative in Germany. They were applied universally in the civil courts, and the canon law as the *lex posterior* was preferred in place of conflict. These two systems, along with the feudal customs, were the three constituent elements of the common law of *Gemeines Recht*. The jurisdiction of the latter is now confined by the provisions of the modern codes to about one-third of Germany. Within that area the *Corpus Juris Canonici* may be quoted to aid in interpreting a doubtful point of common law. In other words, it is of historical but not of legislative authority.

In France the Constituent Assembly, after abolishing tithes and religious orders and secularizing church property, superseded the canon and all other laws for the government of the church by *Constitution Civile du Clerge*, enacted in 1790. Finally, in 1793 the Convention suppressed altogether the Christian religion and its institutions. Since the restoration of the Church in the beginning of this century, both its internal government and external relations have been regulated exclusively by civil enactment, based on the concordat between Napoleon I. and Pope Pius VII. (1801), and the *Article Organiques* which followed in 1802.

The Canon Law is of no intrinsic obligation in England. The English people have in all ages shown a firm determination that neither the national church nor the national law should be subject to the Papal legislation or jurisdiction. As early as 1138 Archbishop Theobald of Canterbury brought over Vacarius and other learned ecclesiastics from Italy to introduce the study of civil and canon law into England. The bishops and clergy vigorously supported the new system so favorable to their order; but the nobility and laity generally adhered to the old common law with great pertinacity. The contest was practically decided when in the 13th century the Court of Common Pleas was fixed at Westminster. This brought together the practitioners in municipal law who had been, while the court was ambulatory, dispersed throughout the kingdom, and shortly afterwards the victory of common law was made secure by the establishment of the Inns of Court and Chancery for the education of youth in municipal law.

The system administered in the spiritual courts is known as "the king's ecclesiastical law." It is based on the canon law, a knowledge of which is highly useful to the English ecclesiastical lawyer. But only such portions of the canon law have been adopted as have been sanctioned by the national legatine and provincial constitutions, the statutes of the realm, and immemorial church usage.

The canon law, though not binding *proprio vigore*, is one of the sources of the common law of England. The rules for the descent of land, for instance, are borrowed wholly from that system. But England assimilated less of it than other countries, or than might have been adopted by herself with advantage. It was not that the English people considered the provisions of the canon law inferior to their own customs; they were as a rule entirely ignorant of it. But their struggles against appeals to Rome and other claims of ecclesiastical jurisdiction roused the feeling of the nation. They stoutly stood up for their common law, cumbrous and even barbarous in some respects as it was, not because they thought it perfect, but because they were resolved to manage their own concerns after their own fashion. At the parliament of Merton (1236) when the bishops proposed that legitimation by subsequent marriage should be legalized, alleging that holy church (that, is the canon law) sanctioned such legitimation, all the earls and barons, we are told, with one voice answered, "Nolumus leges Angliæ mutari." This incident shows that even at that early date canon law was of no authority unless sanctioned by the law of the land, for the decretal (c. 6, X. qui filii sint legitimi, iv. 17) alluded to by the bishops was addressed by Pope Alexander III. to the bishop of Exeter in 1172, and was incorporated in the Decretals of Gregory promulgated in 1234, two years before the parliament of Merton.

Several causes conduced to the provisions of the canon law being extensively adopted by the law of Scotland. During the sixteenth and seventeenth centuries cannon law was publicly taught in the Scottish universities; and from a very early period it was the custom

of the Scottish youth to resort for purposes of study to foreign countries, whence many of them returned doctors *in utroque jure*.

CANONICAL, as an adjective, is found associated with many substantives, and always implies dependence, real or supposed, upon the canons of the church. Thus we read of "*canonical obedience*," as signifying the obedience recognized as due to a superior officer of the church from an inferior, as that due to a bishop from a presbyter. Perhaps the best known and most widely spread use of the term occurs in the case of *Canonical Hours*, otherwise called *Hours of Prayer*, which are certain stated times of the day, consigned in the East, and in the West before the Reformation, more especially by the Church of Rome, to offices of prayer and devotion. These were at first three only, and were supposed to be inherited from the Jewish Church (see Psalm lv. 17, Dan. vi. 10, and Acts iii. 1),—namely, the third, sixth, and ninth hours, corresponding to 9 A.M., noon, and 3 P.M. with us.

CANONIZATION, a ceremony in the Church of Rome, by which persons deceased are ranked in the catalogue of the saints. This act is preceded by beatification; and after the merits of the individual have been duly tested and approved, the Pope decrees the canonization.

So long as the right of according the honors of canonization was vested in the bishops, there was no public guarantee that it had been exercised with rigor or discretion. But when it passed into the hands of the popes, means were taken to prevent any but really meritorious persons from being enrolled in the holy category. Even then, however, a very simple ordeal sufficed. A few miracles reported to have happened at a tomb were enough to give its inmate a claim to have his name inscribed in the canon of the mass among the number of the happy. A Roman Catholic writer, the editor of Butler's *Lives of the Saints* (ed. 1866) states that "the proceedings of a beatification or canonization are long, rigorous, and expensive." It has been asserted that the discovery of the last-named feature of the process prevented the somewhat parsimonious Henry VII. of England from carrying out his desire for the canonization of King Henry VI.; Bacon, however (*History of Henry VII.*), inclines rather to the belief that the obstacle here was the pope's fear it would "diminish the estimation of that kind of honor" to give it to such a "simple man." At a later period, when the ceremony was only performed after a considerable lapse of time, reasons were always hard to be found why the saintly candidate should be rejected. In modern times the court of Rome has shown itself extremely averse to promiscuous canonization; and since the days of Benedict XIV., the promoter of the faith, popularly known as the devil's advocate, has exercised extreme severity in sifting the claims of aspirants. It is further necessary that a period of a hundred years should elapse between the death of the saint and his admission into the calendar. But the more pious men of every country in Europe have of late evinced so little ambition to secure this posthumous compliment, that it may now be considered to have gone fairly out of fashion. It is also probable that the far more stringent rules of evidence and the growth of physical science have tended to render proof of the supernatural much more difficult than it seemed to be to our mediæval forefathers.

On the day of canonization the Pope and cardinals officiate in white; while St. Peter's church is illuminated and hung with rich tapestry, upon which the arms of the Pope, and of the Prince or state requiring the canonization, are embroidered in gold and silver.

CANOPUS, or CANOBUS, in ancient geography, a

town of Lower Egypt, on the Mediterranean, a hundred and twenty stadia, or fifteen miles, to the east of Alexandria. It contained a very popular shrine of the god Serapis; and was the seat of the manufacture of henna, the scarlet dye with which women in the East color their nails. The town was notorious for its dissoluteness; and as Alexandria rose into eminence, it gradually declined. All that remains is a heap of ruins. Canopus, the pilot of Menelaus, is said to have died in Egypt, and to have given his name to the town.

CANOPY (Lat. *canopeum*; Gr. *kônōpeion*, from *kônōps*, gnat or mosquito) was originally a mosquito curtain. Subsequently the same term came to be used for the projecting covering and hangings of a bed, and latterly for any projecting covering of a similar form to whatever use it might be adapted, or of whatever material it might be formed. Canopy is thus used to signify the covering which is borne over the heads of kings and other persons of distinction, and still more frequently over the Holy Sacrament and the image of Christ in processions in Roman Catholic countries. In Gothic architecture, canopy is the term applied to the stone coverings usually projected over statues, both on the exterior and in the interior of buildings to protect them from the rain and dust. The term canopy is also applied to the gable-shaped and crocketed moldings frequently placed over doors, windows, niches, etc.; also to ornamental stone coverings placed over tombs, of which fine examples may be seen in Westminster Abbey. The wooden coverings erected over the prebendaries' stalls in cathedrals are also called canopies, as well as the lofty ornamental tops which are often introduced over bishops' thrones, pulpits, and altars.

CANOSA, or CANUSIUM, a city of Italy, in the province of Terra di Bari, and district of Barletta, situated on the slope of an eminence on the right bank of the Aufidus or Ofanto, about 15 miles from the sea, and six miles from the battlefield of Cannæ. Its most interesting buildings of modern date are a feudal castle on the top of the hill, and the church of St. Sabinus the patron saint of the city, with its mosque-like cupolas and ancient pulpit. In the neighborhood of the latter stands the tomb of Bohemond of Antioch, who died in 1102. The ruins of the old Roman city extend for a considerable distance beyond the modern town; large portions of its walls can still be traced; and there are extensive remains of an amphitheatre which was larger than that of Pompeii, and a gateway, frequently described as a triumphal arch, dedicated to Trajan. Various explorations have brought to light great numbers of vases, inscriptions, and miscellaneous antiquities, among which is a complete list of the members of the municipal senate. The vases, which have been principally derived from the sepulchres excavated in the tufa rock which were discovered about 1803, are large in size and somewhat coarse in workmanship. Like several of the more important cities in this part of Italy, Canusium is said to have been founded by the Grecian hero Diomedes; the origin of the city, however, can be traced with tolerable certainty to the Pelasgi. Canusium is first mentioned in history as assisting the Samnites in their wars with the Romans, by which it was subdued for the first time 318 B.C. In the second Punic war the inhabitants gave shelter within their walls to the remnant of the Roman army, which retreated thither after the rout at Cannæ. In the second year of the social war, in which Canusium joined the revolted allies, it was besieged unsuccessfully by the Romans. In the civil wars it suffered severely, but always contrived to preserve its municipal privileges, and was never colonized from Rome until the days of Marcus Aurelius. Till a late period in the Middle Ages Canusium continued an im-

portant and flourishing city; but it suffered severely at the hands of Lombards and Saracens. In 1694 it was laid in ruins by an earthquake, and in 1851 it was considerably injured by a similar disturbance. The title of prince of Canosa was bestowed in 1712 on Tiberio Capece. Population, 14,900.

CANOSSA, a ruined castle of Northern Italy, twelve miles southwest of Reggio. In its court-yard the Emperor Henry IV. stood shivering, bareheaded, and barefooted for three days (January 25-28, 1077) before Pope Gregory VII., who was staying here with the Countess Matilda of Tuscany.

CANOVA, ANTONIO (1757-1822), one of the leading sculptors of modern times, was born on November 1, 1757, at Passagno, an obscure village situated amid the recesses of the hills of Asolo, where these form the last undulations of the Venetian Alps, as they subside into the plains of Treviso. At three years of age Canova was deprived of both parents, his father dying and his mother remarrying. The father and grandfather of our artist followed the occupation of stonecutters or minor statuary; and it is said that their family had for several ages supplied Passagno with members of that calling. As soon as Canova's hand could hold a pencil, he was initiated into the principles of drawing by his affectionate grandfather Pasino. The latter possessed some knowledge both of drawing and architecture, designed well, and showed considerable taste in the execution of ornamental works. To his art he was greatly attached; and upon his young charge he looked as one who was to perpetuate the family profession as well as its name.

The early years of Canova were passed in study. The bias of his mind was to sculpture, and the facilities afforded for the gratification of this predilection in the workshop of his grandfather were eagerly improved. In his ninth year he executed two small shrines of Carrara marble, which are still extant. Soon after this period he appears to have been constantly employed under his grandfather. Amongst those who patronized the old man was the patrician family Falier of Venice, and by this means young Canova was first introduced to the senator of that name, who afterwards became his most zealous patron. Between the younger son, Giuseppe Falier, and the artist a friendship commenced which terminated only with life. From the interest which was excited in this family for Canova, the senator Falier was induced to receive him under his immediate protection. It has been related by an Italian writer, and since repeated by several biographers, that Canova was indebted to a trivial fortuitous circumstance,—the moulding of a lion in butter,—for the warm interest which Falier took in his welfare. The anecdote may or may not be true. By his kind patron Canova was placed under Bernardi, or, as he is generally called by filiation, Torretto, a sculptor of considerable eminence, who had taken up a temporary residence at Pagnano, a village in the vicinity of the senator's mansion. This took place whilst Canova was in his thirteenth year; and with Torretto he continued about two years, making in many respects considerable progress. This master returned to Venice, where he soon afterwards died; but by the high terms in which he spoke of his pupil to Falier, the latter was induced to bring the young artist to Venice, whither he accordingly went, and was placed under a nephew of Torretto. With this instructor he continued about a year, studying with the utmost assiduity. After the termination of this engagement he began to work on his own account, and received from his patron an order for a group on the subject of Orpheus and Eurydice. The first figure, which represents Eurydice in flames and smoke, in the act of leaving the infernal realms, was completed towards the close of his sixteenth year. It was

highly esteemed by his patron and friends, and the artist was now considered qualified to appear before a public tribunal. The kindness of some monks supplied him with his first workshop, which was the vacant cell of a monastery. Here for nearly four years he labored with the greatest perseverance and industry. He was also regular in his attendance at the academy, where he carried off several prizes. But he relied far more on the study and imitation of nature. From his contemporaries he could learn nothing, for their style was vicious. From their works, therefore, he reverted to living models, as exhibited in every variety of situation. A large portion of his time was also devoted to anatomy, which science was regarded by him as "the secret of the art." He likewise frequented places of public amusement, where he carefully studied the expressions and attitudes of the performers. Not a day was allowed to pass without his making some visible advances in his profession. He formed a resolution, which was faithfully adhered to for several years, never to close his eyes at night without having produced some design. Whatever was likely to forward his advancement in sculpture he studied with ardor. On archæological pursuits he bestowed considerable attention. With ancient and modern history he rendered himself well acquainted, and he also began to acquire some of the Continental languages.

Three years had now elapsed without any production coming from his chisel. He began, however, to complete the group for his patron, and the Orpheus which followed evinced the great advance he had made. The work was universally applauded, and laid the foundation of his fame. Several groups succeeded this performance, among which was that of Dædalus and Icarus, the most celebrated work of his novitiate. The simplicity of style and the faithful imitation of nature which characterized them called forth the warmest admiration. His merits and reputation being now generally recognized, his thoughts began to turn from the shores of the Adriatic to the banks of the Tiber, for which he set out at the commencement of his twenty-fourth year.

Before his departure for Rome, his friends had applied to the Venetian senate for a pension, to enable him to pursue his studies without embarrassment. The application was ultimately successful. The stipend amounted to three hundred ducats (about \$280 per annum), and was limited to three years. Canova had obtained letters of introduction to the Venetian ambassador, the Cavaliere Zulian, an enlightened and generous protector of the arts, and was received in the most hospitable manner. His arrival in Rome, 28th December 1780, marks a new era in his life. It was here he was to perfect himself by the study of the most splendid relics of antiquity, and to put his talents to the severest test by a competition with the living masters of the art. The result was equal to the highest hopes cherished either by himself or by his friends. The work which first established his fame at Rome was Theseus vanquishing the Minotaur. The figures are of the heroic size. The victorious Theseus is represented as seated on the lifeless body of the monster. The exhaustion which visibly pervades his whole frame proves the terrible nature of the conflict in which he has been engaged. Simplicity and natural expression had hitherto characterized Canova's style; with these were now united more exalted conceptions of grandeur and of truth. The Theseus was regarded with rapturous admiration.

Canova's next undertaking was a monument in honor of Clement XIV. He spent about two years of unremitting toil in arranging the design and composing the models for the tomb of the pontiff. After these were

completed, other two years were employed in finishing the monument, and it was finally opened to public inspection in 1787. The work, in the opinion of enthusiastic *dilettanti*, stamped the author as the first artist of modern times. After five years of incessant labor, he completed another cenotaph to the memory of Clement XIII., which raised his fame still higher. Works now came rapidly from his chisel. Amongst those which belong to the period in question is *Psyche*, with a butterfly, which is placed on the left hand, and held by the wings with the right. This figure, which is intended as a personification of man's immaterial part, is considered as in almost every respect the most faultless and classical of Canova's works. In two different groups, and with opposite expression, the sculptor has represented Cupid with his bride; in the one they are standing, in the other recumbent. These and other works raised his reputation so high that the most flattering offers were sent him from the Russian court to induce him to remove to St. Petersburg, but these were declined.

Numerous works were produced in the years 1795-97, of which several were repetitions of previous productions. It is only necessary to notice the celebrated group representing the Parting of Venus and Adonis. This famous production was sent to Naples. The French Revolution was now extending its shocks over Italy; and Canova sought obscurity and repose in his native Passagno. Thither he retired in 1798, and there he continued for about a year, principally employed in painting, of which art also he had some knowledge.

Soon after his return appeared his *Perseus with the Head of Medusa*. The moment of representation is when the hero, flushed with conquest, displays the head of the "snaky Gorgon," whilst the right hand grasps a sword of singular device. By a public decree, this work was placed in one of the *stanze* of the Vatican hitherto reserved for the most precious works of antiquity; but it would be a mistake to say that it sustains this comparison, or that it rivals the earlier realization of the same subject in Italian art, that by Cellini. In 1802, at the personal request of Napoleon Canova repaired to Paris to model a bust of the First Consul. The artist was entertained with munificence, and various honors were conferred upon him. The statue, which is colossal, was not finished till six years after. On the fall of the great Napoleon, Louis XVIII. presented this statue to the British Government, by whom it was afterwards given to the Duke of Wellington.

Among Canova's compositions of grace and elegance, the statue of *Hebe* takes the first place in point of date. Four times has the artist embodied in stone the goddess of youth, and each time with some variation. The only material improvement, however, is the substitution of a support more suitable to the simplicity of the art. Each of the statues is, in all its details, in expression, attitude, and delicacy of finish, strikingly elegant. *The Dancing Nymphs* maintain a character similar to that of the *Hebe*. *The Graces* and the *Venus* are more elevated. *The Awakened Nymph* is another work of uncommon beauty. *The Mother of Napoleon*, his consort Maria Louisa (as Concord), to model whom the author made a further journey to Paris in 1810, the Princess Esterhazy and the muse *Polymnia* (Elisa Bonaparte) take their place in this class, as do the ideal heads, comprising *Corinna*, *Sappho*, *Laura*, *Beatrice*, and *Helen of Troy*.

The cenotaphs and funereal monuments fall next to be noticed. Of these the most splendid is the monument to the Archduchess Maria Christina of Austria, consisting of nine figures. Besides the two for the Roman pontiffs already mentioned, there is one for Alfieri, an-

other for Emo, a Venetian admiral, and a small model of a cenotaph for Nelson, besides a great variety of monumental rilievos.

In 1815 he was commissioned by the Pope to superintend the transmission from Paris of those works of art which had formerly been conveyed thither under the direction of Napoleon. By his zeal and exertions, for there were many conflicting interests to reconcile, he adjusted the affair in a manner at once creditable to his judgment and fortunate for his country. In the autumn of this year he gratified a wish he had long entertained of visiting London, where he received the highest tokens of esteem. The artist for whom he showed particular sympathy and regard in London was Haydon, who might at the time be counted the sole representative of historical painting there, and whom he especially honored for his championship of the Elgin marbles, then recently transported to England, and ignorantly depreciated by polite connoisseurs. Canova returned to Rome in the beginning of 1816, with the ransomed spoils of his country's genius. Immediately after, he received several marks of distinction, — by the hand of the Pope himself his name was inscribed in "the Golden Volume of the Capitol," and he received the title of marquis of Ischia, with an annual pension of 3000 crowns, about \$3,100.

He now contemplated a great work, a colossal statue of Religion. The model filled Italy with admiration; the marble was procured, and the chisel of the sculptor ready to be applied to it, when the jealousy of the churchmen as to the site, or some other cause, deprived the country of the projected work. The mind of Canova was inspired with the warmest sense of devotion, and though foiled in this instance he resolved to consecrate a shrine to the cause. In his native village he began to make preparations for erecting a temple which was to contain, not only the above statue, but other works of his own; within its precincts were to repose also the ashes of the founder. Accordingly, in prosecution of this design, he repaired to Passagno in 1819. At a sumptuous entertainment which he gave to his workmen, there occurred an incident which marks the kindness of his character. When the festivities of the day had terminated, he requested the shepherdesses and peasant-girls of the adjacent hamlets to pass in review before him, and to each he made a present, expending on the occasion about \$2,000. We need not therefore be surprised that a few years afterwards, when the remains of the donor came to be deposited in their last asylum, the grief which the surrounding peasantry evinced was in natural expression so intense and irrepressible as to eclipse the studied solemnity of more pompous mourning.

After the foundation stone of this edifice had been laid, Canova returned to Rome; but every succeeding autumn he continued to visit Passagno, in order to direct the workmen, and encourage them with pecuniary rewards and medals. In the meantime the vast expenditure exhausted his resources, and compelled him to labor with unceasing assiduity when age and disease had set their seal upon his frame. During the period which intervened between commencing operations at Passagno and his decease, he executed or finished some of his most striking works. Amongst these were the group *Mars and Venus*, the colossal figure of Pius VI., the *Pietà*, the *St. John*, the recumbent *Magdalen*. The last performance which issued from his hand was a colossal bust of his friend the Count Cicognara. In May 1822 he paid a visit to Naples, to superintend the construction of wax moulds for an equestrian statue of the perjured Bourbon king Ferdinand. This journey materially injured his health, but he rallied again on his

return to Rome. Towards the latter end of the year he paid his annual visit to the place of his birth, when he experienced a relapse. He proceeded to Venice, and expired there on the 13th of October 1822, at the age of nearly sixty-five. His disease was one which had affected him from an early age, caused by the continual use of carving-tools, producing a depression of the ribs. The most distinguished funeral honors were paid to his remains, which were deposited in the temple at Passagno. He renovated the art of sculpture, and brought it back to that standard from which it had declined.

CANSO, CAPE, the eastern extremity of Nova Scotia, at the entrance of Chedabucto Bay.

CANSTATT, CANNSTADT, or KANSTATT, a town of Würtemberg, in the circle of the Neckar, about two and one-fourth miles northeast of Stuttgart, is situated in the most fertile and populous part of the country, at a point where the high roads of the circle converge, and forms one of the most flourishing towns in Germany. Canstatt is mentioned as early as the eighth century, under the name of Condistat, as the seat of a great court held by Charlemagne for the trial of the rebellious dukes of Alemannia and Bavaria. From Louis the Bavarian it received the same imperial rights and privileges as were enjoyed by the town of Esslingen. Down to the middle of the fifteenth century it remained the capital of Würtemberg; and as an important place of transport it has been frequently the object of military operations. In 1755, at the time of the great earthquake in Lisbon, part of the town-house subsided three feet. Population, 11,804.

CANSTEIN, KARL HILDEBRAND, COUNT OF, was born at Lindenberg, in 1667. Canstein is the author of a *Life of Spencer*, a *Harmony of the Gospels*, and several theological works. He is, besides, one of those to whom the introduction of stereotype printing has been ascribed. He died in 1719.

CANTABILE, in Music, is a term placed over sections of easy and flowing melody, in contradistinction to brilliant passages or rapid executive runs, as well in instrumental as vocal music.

CANTABRIA, a district of Hispania Tarraconensis, lying on the south coast of the Bay of Biscay. By the more ancient geographers the name was applied to the entire country now occupied by the provinces of Asturias, Santander, Biscay, and Guipuzcoa. After the conquest of Spain by the Romans, the name of Cantabria was restricted to what is now the province of Santander and the eastern portion of Asturias.

The Cantabri were not improbably the remains of an ancient Iberian population, and were, according to some, the ancestors of the modern Basques. They were the most warlike of all the native Spanish tribes that the Romans had to encounter, and were never completely subdued. Together with the Astures, they offered for many ages a successful resistance to the Roman arms, and were only at last compelled to acknowledge the supremacy of Rome by Augustus.

CANTACUZENUS, JOHANNES, emperor of the East, celebrated as a statesman, general, and historian, was born at Constantinople, of ancient and opulent family, and under the reign of the elder Andronicus held the high office of Great Domestic. In the disputes that ensued between that emperor and his grandson, Cantacuzenus espoused the cause of the latter; and when Andronicus II., on the abdication of his grandfather, ascended the throne (1328) he was entrusted with the supreme administration of affairs, in which capacity he displayed considerable vigor and ability. On the death of the emperor in 1341, Cantacuzenus was left regent, and guardian of his son John Palæologus, who was but nine years of age. Whether he would

have continued faithful to his trust is uncertain; but being suspected by the empress, and the object of the hostility of a powerful party at court, he rebelled, and got himself crowned emperor in one of the provincial towns, while his opponents, with the young emperor John, maintained themselves at Constantinople. The civil war which ensued lasted six years; and as the rival parties were obliged to call in the aid of the Servians and Turks, and to engage mercenaries of every description, the empire was reduced to a state of incredible confusion, and nearly ruined. At the outset Cantacuzenus was so hard pressed that he was obliged to flee into Servia. An alliance with Servia enabled him to make head against his enemies for some time; but his inconstant allies soon left him to join the other side, or to pursue their own private ends. It was with the help of the Turks that he brought the war to a termination. He formed an alliance with Orehan, the Ottoman Sultan of Broussa, on the disgraceful conditions of sending his daughter to the harem of the Turk, and of allowing his army to make slaves of the Greek subjects. In 1346 he entered Constantinople in triumph, and forced his opponents to an arrangement by which he became joint emperor with John Palæologus, retaining the administrative power in his own hands during the minority of his colleague. It is impossible to give a connected view of the government of Cantacuzenus. The empire, already broken up into disconnected fragments, and reduced to the narrowest limits, was assailed on every side by open enemies or treacherous friends. There were wars with the Genoese, who had a colony at Galata and had money transactions with the court, and with the Servians, who were at that time establishing an extensive empire on the north-western frontiers,—carried on in every case without energy and without happy result; and there was a hazardous alliance with the Turks, who made their first permanent settlement in Europe, at Callipolis, in Thrace, towards the end of the reign of Cantacuzenus (1354). It would be wrong to blame him, however, for introducing those enemies of Christendom into Europe, as they had been in the habit of interposing in the unhappy struggles of the Greek empire. No individual energy could have saved a moribund state from destruction at the hands of its more vigorous neighbors. Yet Cantacuzenus was far too ready to employ them in his European quarrels; and as he had no money to pay them, this gave them a ready pretext for seizing upon a European town. The financial burdens imposed by Cantacuzenus had long been displeasing to his subjects, and there had always been a strong faction in favor of John Palæologus. Hence, when the latter entered Constantinople in the end of 1354, his success was easy. Cantacuzenus retired to a monastery, where he occupied himself in literary labors. He wrote a history of his own life and times, which has been incorporated in the series of Byzantine historians. Cantacuzenus was not without ability, and had some literary merit and even eloquence, but with a considerable share of the Byzantine vices,—timidity, duplicity, and falsity.

CANTAGALLO, a town of Brazil, in the province of Rio de Janeiro, about 80 miles N.E. of the city of that name, on a small tributary of the Parahyba, with a station on the railway from Rio de Janeiro to Campos. It was formerly the seat of important gold mines; but, since these were worked out, it has depended almost wholly upon agriculture. Population about 4200.

CANTAL, a department in Central France, bounded north by the department of Puy-de-Dôme, and east by Haute-Loire and Lozère, south by Aveyron and Lozère, and west by Corèze and Lot. Its area is 2208 square miles; and its population in 1889 was 260,000.

It is formed of the ancient province of Upper Auvergne, and received its name from the Plomb-du-Cantal, the central peak of a bare and rugged chain which traverses the whole department. Cantal produces a vast variety of aromatic and medicinal plants; and its mineral products include coal, copper, lead, iron, antimony, granite, and slate. Several mines of coal and one of antimony are worked, but generally these natural sources of wealth are neglected. The capital is Aurillac.

CANTARINI, SIMONE (1612-48), called SIMONE DA PESARO, a painter and etcher, was born at Oropezza near Pesaro in 1612. He was a disciple of Guido, and a fellow-student of Domenichino and Albano. The irritability of his temper and his vanity were extreme; and it is said that his death, which took place at Verona in 1648, was occasioned by chagrin at his failure in a portrait of the duke of Mantua. His most celebrated etching is *Jupiter, Neptune, and Pluto*, honoring the arms of Cardinal Borghese.

CANTATA, in Music, was originally the name applied to a sort of musical narrative by one person, accompanied by a single instrument. Subsequently an air was introduced, repeated at intervals during the recitative. The name is now applied to choral works, either sacred (and similar to, but shorter than, the oratorio) or secular, either lyric or dramatic, but not intended for the stage.

CANTEEN, in the United States army a tin vessel with a strap attached, also a refreshment-house in a barrack for the use of the soldiers.

CANTEMIR, ANTIOCHUS (1700-44), the father of Russian poetry, was the youngest son of Demetrius Cantemir, noticed below. At thirty years of age he was nominated minister to the court of Great Britain; and there, as well as in France, whither he went as minister-plenipotentiary, he was equally admired as a statesman and as a man of letters. His conduct in relation to the different revolutions which agitated Russia during his absence procured him the confidence and esteem of three successive princes. He died at Paris in 1744.

CANTEMIR, DEMETRIUS, son of a prince of Moldavia, was born in 1673, and died in 1723. On his father's death, though not permitted to succeed to the throne of Moldavia, he continued faithfully to serve the Turks, distinguishing himself in many campaigns, and acquiring the Oriental as well as the European languages, of which he became a great master. In 1710 he was at last appointed prince of Moldavia, in order to aid in resisting the threatened invasion of Peter the Great. Convinced of the approaching ruin of the Turks, Cantemir joined the Czar, and shared in the campaign of 1711 on the Pruth, which proved so humiliating to Russia. On the conclusion of peace, Peter, who had refused to give up his ally to the victorious Turks, took him with him to Russia, where he lived till his death, assisting the Czar in his wars, and in great favor with him. He wrote several works, the most important being a history of the growth and decay of the Ottoman empire.

CANTERBURY, a city and borough in the county of Kent, distant from London 55 miles E.S.E., is approached from London by the South-Eastern and the London-Chatham-and-Dover railways; and a line, six miles in length, connects it with Whitstable, a small harbor on the north coast of Kent, which is its port for trade purposes.

Canterbury contains a cathedral church, the seat of an archbishop, who is primate of all England and metropolitan, and provincial of the dioceses south of Kent, — his own diocese comprising the greater part of Kent

and a small piece of Surrey. The cathedral library contains about 9000 volumes, and is rich in ancient charters and registers of the monastery. Besides the cathedral there are fifteen parish churches, and places of worship for Roman Catholics, Jews, Unitarians, Independents, Baptists, Wesleyans, Lady Huntingdon's congregation, and the Society of Friends. In the crypt of the cathedral there is also a church founded by Queen Elizabeth for French Protestant refugees, and still used by a small French congregation. A college for the education of missionary clergy of the Church of England was founded by Royal Charter in 1848 on the ruins of St. Augustine's abbey; and on St. Thomas Hill in the suburbs is the boy's school of the Clergy Orphan Corporation. The principal public buildings are the Guild Hall, the corn Exchange with market-place below, the Museum, the Kent and Canterbury Hospital, an institution for upwards of 100 patients, and the gaol, which is for the eastern division of the county, with the county court-hall adjoining. The city contains barracks for horse, foot, and artillery, — that for cavalry being used for depôts of regiments on foreign service, and that for infantry as the brigade depôt of the 3d regiment (Buff's) and the East Kent regiment, and as the headquarters of the East Kent militia. The trade of Canterbury comprises good markets for hops and corn, but has no other specialty. There are some pleasant public gardens known as the Dane-John Walks. The suburbs and neighborhood are favorite spots for residence.

Canterbury returns two members to Parliament, the constituency being 2794 (revision 1875). The population in 1871 was 20,962, and the number of houses 4102.

Canterbury occupies the site of the Roman *Durovernum*, a city established upon that ford of the River Stour at which roads from the three Kentish harbor-fortresses, *Rutupidæ*, *Dubra*, and *Lemanæ* (now Richborough, Dover, and Lympne) became united into the one great military way through Britain, known in later days as Watling Street. From this ford the city apparently derived its name, the first syllable of which is the Celtic *dwr*, "water." The Romans do not seem, at least towards the end of their occupation, to have made it a military centre, or given it a permanent garrison; but, as a halting-place for troops on the march, and commercially, as lying in a direct path of all the Continental traffic of Britain, its importance at this date must have been considerable. The city reappears, under its new name of Cantwarabyrig (since shortened to the present word), as the capital of Ethelbert, the fourth Saxon king of Kent, during the latter part of whose reign it became in a manner the metropolis of England, — the office of Bretwalda, or overlord, of the island to the Humber being held by Ethelbert. It was in this reign (in 596) and under these circumstances that Augustine and his fellow-missionaries arrived from Rome, and their settlement by Ethelbert in his capital became the origin of its position, held ever since, as the metropolis of the English Church. Its history from this time becomes chiefly ecclesiastical. Here lived and ruled Augustine and the succeeding archbishops, and here under their auspices, from the time of Ethelbert and Augustine downwards, arose two of the principal monasteries of England, the abbey of St. Augustine and the priory of Christ Church, — the latter ruled by a prior only, as acknowledging the archbishop for its abbot. These were long rivals in importance and wealth, in which the abbey held for several centuries the advantage, as possessing the shrines of the earlier archbishops, the chief saints of the English Church, till the pre-eminence of the priory in turn became decidedly established by the murder of Archbishop Becket (1170) in its cathedral church, his canonization as St. Thomas of Canterbury,

and the resort of the Christian world on pilgrimage to his shrine. Miracles were almost immediately said to be worked at his grave in the crypt, and at the well in which his garments had been washed; and from the time when Henry II. did his penance for the murder in the church, and the battle of Alnwick was gained over the Scots a few days afterwards—it was supposed as a result—the fame of the martyr's power and the popularity of his worship became an established thing in England. On the rebuilding of the cathedral after a fire, in 1175, a magnificent shrine was erected for him in a new chapel built for the purpose, which became thronged for three centuries by pilgrims and worshippers of all classes, from kings and emperors downwards. Henceforward the interests of the city became bound up in those of the cathedral, and were shown in the large number of hostels for the accommodation of the pilgrims, and of the shops containing wares especially suited to their tastes. A pilgrimage to Canterbury became not only a pious exercise, but a fashionable summer excursion; and the poet Chaucer, writing in the 14th century, has given us an admirable picture of such pilgrimages, with the manners and behavior of a party of pilgrims, leisurely enjoying the journey, and telling stories to each other on the road. Our very language still contains two words originating in these customs,—a “canterbury,” or a “canterbury tale,” a phrase used for a fiction,—and a “canter,” which is a short form of a “canterbury gallop,” an allusion to the easy pace at which these pilgrimages were performed. The largely ecclesiastical character of the city may still be seen in the numerous remains of buildings connected with the church with which its streets abound to the present day. The shrine with its vast collected wealth was destroyed, and every reminiscence connected with it as far as possible effaced, by King Henry VIII.'s commissioners in 1538.

The cathedral stands on the sight of a Roman church given by King Ethelbert, together with his own palace adjoining, to Augustine and his monks. This early church and its adjacent buildings were destroyed and entirely rebuilt by Archbishop Lanfranc in 1070, and the choir was again rebuilt on a larger scale by his successor Archbishop Anselm, whose work, in turn, on being restored after the fire of 1172, was then considerably enlarged, especially by the addition of a chapel and corona, both dedicated to St. Thomas, at its eastern end. In this state substantially the choir remains to the present day. Lanfranc's nave survived till the 14th century, when it was rebuilt, with the exception of one western tower, taken down in 1834. The central tower was not completed till about 1500. The most interesting parts remaining in the present church are—(1) the site of the murder of Becket in the north-west transept, which still shows the mark of the altar erected in its commemoration, though a prevalent story of a stone in the pavement from which his bloodstain has been cut out, is a modern fiction; (2) the site of the shrine itself, shown by the rough flooring in the centre of its chapel, King Henry's commissioners having destroyed the very pavement on which it stood; (3) a few remaining windows of rich 12th century glass, unique in England and scarcely equalled on the Continent; (4) monuments of the Black Prince, of Henry IV. and his queen, and of several of the archbishops from Peckham to Pole; (5) fine remains of Norman fresco-painting in the apse of St. Gabriel in the crypt; and (6) the choir itself, built through the ten years succeeding 1174, an interesting specimen of the gradual transition from the Norman style progressing in England at the latter end of the 12th century, and showing especially the first introduction of that Southern-French variety of detail which gained a

place in the new style now known as Early English. Many of the monastic buildings still remain, as the cloisters, the chapter-house, the treasury, the two entrance gateways, and the lavatory tower now used as a baptistery; and scattered in the precincts are relics of the infirmary, the dormitory, the prior's house, and three sets of buildings for hospitality to three different grades of pilgrims—all showing beauty of architecture.

CANTERBURY, a province of New Zealand, occupying the central portion of the Middle Island.

The downs and great plain of Canterbury are devoid of forests, but the mountain regions and Banks Peninsula yield abundance of excellent timber. The principal trees are the totara (*Podocarpus Totara*), rimu or red pine (*Dacrydium cupressinum*), and kahikatea or white pine (*Podocarpus dacrydioides*). Coal well adapted for household and industrial purposes, though not of the first quality, is found in the Malvern Hills, to the west of Christchurch, and beds of clay ironstone exist in various localities, but are not yet worked. Gold is found in the south-western angle of the province, near the Otago border, though not in sufficient quantity to tempt many to search for it. The wealth of Canterbury consists in its flocks and its yield of agricultural produce.

Canterbury was founded in December 1850 by an association headed by men of influential position in England, and connected with the national church. It was indeed sought for a time to prevent persons not members of the Church of England from settling in Canterbury, but the attempt was a failure. In 1867 the portion of the province west of the Southern Alps was formed into a separate province, under the name of Westland. Further particulars regarding the history of Canterbury will be found under the heading **NEW ZEALAND**.

CANTHARIDES, or **SPANISH FLIES**, are the common blister-beetles (*Cantharis vesicatoria* or *Lytta vesicatoria*) of European pharmacy. They are bright iridescent golden-green or bluish-colored insects, with the breast finely punctured and pubescent, head and thorax with a longitudinal channel, and elytra with two slightly elevated lines. The insect is from half-an-inch to an inch in length, and from one to two lines broad, the female being broader in the abdomen and altogether larger than the male. It is a native of the South of Europe, being found in Spain, France, Germany, Italy, Hungary, and the South of Russia, and it is also obtained in Siberia. The Spanish fly is also occasionally found in the South of England. The insects feed upon ash, lilac, privet, and jasmine leaves, and are found more rarely on elder, rose, apple and poplar trees. Their presence is made known by a powerful disagreeable odor, which penetrates to a considerable distance; and people sitting under trees on which the insects were feeding have been known to be injuriously affected by their presence. They are collected for use at late evening or early morning, while in a dull bedewed condition, by shaking them off the trees or shrubs into cloths spread on the ground; and they are killed by dipping them into hot water or vinegar, or by exposing them for some time over the vapor of vinegar. They are then dried and put up for preservation in glass-stoppered bottles; and they require to be very carefully guarded against mites and various other minute insects to the attacks of which they are peculiarly liable. Cantharides owe their value to the presence of a peculiar chemical principle, to which the name cantharidin has been given. From about one-fourth to rather more than one-half per cent. of cantharidin has been obtained from different samples; and it has been ascertained that the hard parts of the insect contain about six times more of the active principle than the

soft parts. Cantharidin crystallizes in colorless four-sided prisms; in solution or prepared with lard it produces very powerful vesication, and taken internally it is a violent irritant poison. Spanish flies are most largely used as an external application, being but rarely taken internally. They are applied as a topical stimulant for indolent ulcers, as rubefacients, and especially for blistering in inflammatory diseases. Taken internally in the form of tincture, they have been used in dropsy, in paralysis of the bladder, and for producing aphrodisiacal effects. They have also been employed in lepra and other skin diseases; and they have had a reputation in hydrophobia and other nervous disorders which they do not deserve.

CANTICLES. The book of Canticles, or the Song of Solomon, is called in Hebrew *The Song of Songs* (that is *the choicest of songs*), or, according to the full title which stands as the first verse of the book, *The choicest of the songs of Solomon*. In the Western versions the book holds the third place among the so-called Solomonic writings, following Proverbs and Ecclesiastes. In Hebrew Bibles it stands among the *Megillot*, the five books of the Hagiographa which have a prominent place in the Synagogue service. In printed Bibles and in German MSS. it is the first of these because it is read at the Passover, which is the first great feast of the sacred year of the Jews. Spanish MSS., however, place it second among the *Megillot*, giving the precedence to Ruth.

No part of the Bible has called forth a greater diversity of opinions than the Song of Solomon, and that for two reasons. In the first place, the book holds so unique a position in the Old Testament, that the general analogy of Hebrew literature is a very inadequate key to the verbal difficulties, the artistic structure, and the general conception and purpose of the poem. In point of language it is most nearly akin to parts of the Bible which, like the song of Deborah, belong to Northern Israel, agreeing with these not only in individual traits but in the general characteristic that the departures from ordinary Hebrew are almost always in the direction of Aramaic. Many forms unique in Biblical Hebrew are at once explained by the Aramaic dialects, but not a few are still obscure. The philological difficulties of the book are, however, less fundamental than those which lie in the unique character of the Song of Solomon in point of artistic form, and in the whole atmosphere of thought and feeling in which it moves. Even in these respects it is not absolutely isolated. Parallels to the peculiar imagery may be found in the book of Hosea, in a few passages of the earlier chapters of Proverbs, and above all in the 45th Psalm; but such links of union to the general mass of the Old Testament literature are too slight to be of material assistance in the solution of the literary problem of the book. Here, again, as in the lexical difficulties already referred to, we are tempted or compelled to argue from the distant and insecure analogy of other Eastern literatures, or are thrown back upon traditions of uncertain origin and ambiguous authority.

The power of tradition has been the second great source of confusion of opinion about the Song of Solomon. To tradition we owe the title, which apparently indicates Solomon as the author and not merely as the subject of the book. The authority of titles in the Old Testament (see BIBLE) is often questionable, and in the present case it is certain on linguistic grounds that the title is not from the hand that wrote the poem; while to admit that it gives a correct account of the authorship is to cut away at one stroke all the most certain threads of connection between the book and our historical knowledge of the Old Testament people and litera-

ture. We have already noted that, when judged by comparison with other parts of the Bible and by its Aramaic texture, the dialect points to a northern origin of the poem. It is to Northern Israel, moreover, that the whole local coloring and scenery belong; so that even those commentators who still make Solomon the hero and author of the book are compelled to represent him as laying aside his kingly pomp to wander with a peasant girl through the gardens and forests of Galilee.

To tradition, again, we owe the still powerful prejudice in favor of an allegorical interpretation, that is, of the view that from verse to verse the Song sets forth the history of a spiritual and not merely of an earthly love. To apply such an exegesis to Canticles is to violate one of the first principles of reasonable interpretation. True allegories are never without internal marks of their allegorical design. The language of symbol is not so perfect that a long chain of spiritual ideas can be developed without the use of a single spiritual word or phrase; and even were this possible it would be false art in the allegorist to hide away his sacred thoughts behind a screen of sensuous and erotic imagery, so complete and beautiful in itself as to give no suggestion that it is only the vehicle of a deeper sense. Apart from tradition no one, in the present state of exegesis, would dream of allegorizing poetry which in its natural sense is so full of purpose and meaning, so apt in sentiment, and so perfect in imagery as the lyrics of Canticles. We are not at liberty to seek for allegory except where the natural sense is complete. This is not the case in the Song of Solomon. On the contrary, every form of the allegorical interpretation which has been devised carries its own condemnation in the fact that it takes away from the artistic unity of the poem and breaks natural sequences of thought. The allegorical interpretation of the Song of Solomon had its rise in the very same conditions which forced a deeper sense, now universally discarded, upon so many other parts of Scripture. Yet strangely enough there is no evidence that the Jews of Alexandria extended to the book their favorite methods of interpretation. The arguments which have been adduced to prove that the LXX. translation implies an allegorical exegesis are inadequate; and Philo does not mention the book at all. Nor is there any allusion to Canticles in the New Testament. The first trace of an allegorical view identifying Israel with the spouse appears to be in the Fourth Book of Ezra, near the close of the 1st Christian century (v. 24, 26; vii. 26). Up to this time the canonicity of the Canticles was not unquestioned; and the final decision as to the sanctity of the book, so energetically carried through by R. Akiba, when he declared that "the whole world is not worth the day on which the Song of Songs was given to Israel; for all the scriptures (or Hagiographa) are holy, but the Canticles most holy," must be understood as being at the same time a victory of the allegorical interpretation over the last remains of a view which regarded the poem as simply erotic.

CANTILEVER, or **CANTALIVER** (probably from old Fr. *cant*, angle, and *lever*, raise), a large bracket used in architecture for supporting cornices, balconies, and even stairs. Cantilevers are often highly ornamented. For cantilever as used in bridge-building see BRIDGE.

CANTON, or more correctly **KWANG-CHOW FOO**, is a large and populous commercial city of China, in the province of Kwang-tung, situated on the eastern bank of the Pearl river, which at Canton is somewhat broader than the Thames at London Bridge, and is navigable 300 miles farther into the interior.

When viewed from a point on the hills on the north, Canton appears to be little more than an expanse of reddish roofs relieved by a few large trees,—two pagodas shooting up within the walls, and a five-storied tower near the northern gate, being the most conspicuous objects. Including the suburbs, the city has a circuit of nearly ten miles.

The temples and public buildings of Canton are numerous, but none of them present features worthy of special remark.

The residences of the high officers of government are all within the walls of the old city. The residence of the governor-general used to be in the southwest corner of the new city, but it was utterly destroyed by the bombardment in 1856. The site remained desolate until 1860, when it was taken possession of by the French authorities, who have erected a Roman Catholic Cathedral upon it. The residence of the commander-in-chief is in the old city, and is said to be one of the best houses in Canton.

The foreign trade of Canton was materially damaged by the opening of Shanghai and the ports of the Yangtze, but it is still of very considerable importance.

Although it is in the same parallel of latitude as Calcutta, the climate of Canton is much cooler, and is considered superior to that of most places situated within the tropics.

The intercourse between China and Europe by the way of the Cape of Good Hope began in 1517, when Emmanuel, king of Portugal, sent an ambassador, accompanied by a fleet of eight ships, to Peking, on which occasion the sanction of the emperor to establish a trade at Canton was obtained. It was in 1596, in the reign of Queen Elizabeth, that the English first attempted to open an intercourse with China, but ineffectually, for the two ships which were despatched on this mission were lost in the outward voyage, and it was not till about 1634 that English ships visited Canton.

Tea was first imported in England about the year 1667, and in 1689 a customs duty of 5s. per lb. was for the first time imposed. From this date to 1834 the East India Company held a monopoly of the trade at Canton, and during this period the prosperity of the port increased and multiplied, notwithstanding the obstructions which were constantly thrown in the way of the "Barbarians" by the Chinese Government. The termination of the Company's monopoly brought no alteration in the conduct of the native authorities, whose oppressions became before long so unbearable that in 1839 war was declared on the part of Great Britain. In 1841, while the forces under Sir Hugh (afterwards Lord) Gough were preparing to capture Canton, Capt. Elliott entered into negotiations with the Chinese, and consented to receive a pecuniary ransom in lieu of occupying the city. Meanwhile the war was carried on in central China, and finally resulted in the conclusion of the Nanking Treaty in August, 1842, under the terms of which four additional ports, viz., Shanghai, Ningpo, Fuh-chow Foo, and Amoy, were thrown open to foreign trade, and foreigners were granted permission to enter the city of Canton, from which they had hitherto been excluded. This latter provision of the treaty, however, the Chinese refused to carry out; and after endless disputes about this and other improper acts of the Chinese Government, war was again declared in 1856, the immediate cause of which was an insult offered to the British flag by the capture of certain Chinese on board the "Arrow," a small craft trading under English colors. The outbreak of hostilities was followed by the pillage and destruction of the foreign "factories," in December, 1856, by a Chinese mob, and twelve months later

Canton was taken by assault by a force under Sir Charles Straubenzee, which had been sent out from England for the purpose. From this time until October, 1861, the city was occupied by an English and French garrison, and the administration of affairs was entrusted to an allied commission, consisting of two English officers and one French officer, acting under the English general. Since the withdrawal of this garrison, the city of Canton has been freely opened to foreigners of all nationalities, and the English consul at the present time has his residence in the Yamun formerly occupied by the allied commissioners, within the city walls.

CANTON, a well built and enterprising city in Fulton county, Ill., is 210 miles from Chicago and 28 miles from Peoria, with both of which points the city has communication by the Chicago, Burlington and Quincy and the Wabash, St. Louis and Pacific railroads. It is largely engaged in manufacturing, especially of cigars, there being ten large establishments devoted to that industry; coal mining is also extensively carried on, with other lines of productive industry embracing plows, hardware, machinery, stoves, flour and lumber. In addition, the city contains unsurpassed commercial and educational facilities, including two national banks, three weekly papers, nine churches, schools and academies, stores, warehouses, elevators, hotels and halls. The population is 5,589.

CANTON, a village of Norfolk county, Mass., is situated on the Neponset river and on the Old Colony railroad, fifteen miles south of Boston. The river furnishes water-power of great value, which is generally utilized in Canton and vicinity. The village contains six churches, one weekly paper, two banks, high and intermediate schools, stores, private residences and full lines of manufacture. The latter include twine, soap, hosiery, jackets and nubias, cotton goods, sewing silk, oil-cloth, stove polish, shoe-tools, etc., besides some descriptions of agricultural implements. Pop., 4,521.

CANTON, the capital of Madison county, Miss., and the center of one of the richest cotton-growing districts of the State, is on the New Orleans, St. Louis and Chicago railroad, twenty-four miles from Jackson and ninety miles from Granada. It contains two banks, one daily and two weekly papers, eight churches, public and private schools, many stores and private residences, and some lines of manufacture. Canton is the shipping point for the cotton raised in the surrounding country, and the ginning and baling of this staple is extensively engaged in. The city is growing rapidly, the population at present (1890) approximating 5,000.

CANTON, the capital of Stark county, Ohio, is situated on the Pittsburgh, Fort Wayne and Chicago railroad at its junction with the Valley, the Cleveland and Canton and the Canton and Waynesburg roads, 102 miles from Pittsburgh and 366 miles east of Chicago. A very large and steadily increasing mercantile business is transacted at Canton, the city also being the location of some of the most important industrial enterprises of a special character in the northwest. It contains a court house, six banks, three daily and five weekly papers, fourteen churches, high, grammar and intermediate schools. It is the location of the works of the Wrought Iron Bridge Company, the Canton Steel Company, etc., and manufactures agricultural implements, buggies, tiles, wheels, wire goods, ladders, washing machines, files, glassware, lumber, well drills, cutlery, springs, pumps, roofing, surgical chairs, chemicals, baking powder, woolen goods, carpets, clothing, etc. The population is 26,189.

CANTON, a growing town of Bradford county, Penn., is forty miles from Williamsport and about an equal distance from Elmira, N. Y., on the Northern Central railroad. The village is situated in a section of

the country noted for its fertile soil and romantic scenery, as also for the medicinal and recuperative qualities of the waters of springs to be found in the immediate vicinity. It contains a national bank, one weekly paper, six churches, graded schools, quite a number of stores, lumber and flour mills, foundry and machine shops, and some other lines of manufacture of lesser importance. Population, 5,000.

CANTON, the capital of Lincoln county, S. D., is situated on the Big Sioux river, opposite Beloit, Iowa, and sixty miles northwest of Sioux City. It is the junction of the Sioux City and Dakota and Iowa and Dakota branches of the Chicago, Milwaukee and St. Paul railway, and a place of considerable importance, being the shipping and distributing point for an extended area of country highly cultivated and productive. The city is supplied with an abundant water-power, which is successfully employed in manufacturing establishments. It contains five banks, two weekly papers, churches, schools, hotels, public halls, stores, etc., and manufactures of a general description. Canton is growing rapidly, and offers substantial inducements for the location of business and manufacturing enterprises. Population, 5,000.

CANTON, JOHN, an able English philosopher, was born at Stroud, Gloucestershire, in 1718. He was the first in England to verify Franklin's hypothesis of the identity of lightning and electricity. He died in 1772.

CANTON (Fr.), in Switzerland, a State; in France, a collection of communes, forming a subdivision of an arrondissement.

CANTU, or CANTURIO, a town of Italy, in the province of Como, about five miles south of the city of that name. Population in 1889, about 8,500.

CANUSIUM. See CANOSA.

CANUTE, or CNUT (about 995-1035), was the son of Sweyn or Swend, king of Denmark and England. Though only nineteen years of age at his father's death, he was elected by the Danish armament to the English throne (1014). But the English, only recently subdued by Sweyn, did not acquiesce in this disposal of the crown, recalled their old king Ethelred from Normandy, and obliged Canute to withdraw from the country. In the summer of 1015 Canute returned at the head of a vast Danish armament, and had compelled the submission of most of England when Ethelred died, and his son Edmund Ironside became the representative of the old English royal line. In the double election which ensued, Edmund was supported almost solely by London; the Witan of the rest of England decided upon Canute, who had proved himself too formidable a candidate to be set aside. Nevertheless, in five pitched battles fought during the year 1016, Canute found in Edmund more than an equal rival. At length Canute succeeded in overthrowing him at Assandun.

He governed England like a native Englishman, enforcing the old English laws or enacting wise new ones, repressing disorder, and in every way attending to the interest of his subjects. He was careful of the interests of the church, though it had always been one of the great centers of resistance to Danish invasions, and was not afraid to raise Englishmen, such as Earl Godwin, to the highest posts in his government. A letter written to his English subjects from Rome, to which he had made a pilgrimage, is the best commentary on the motives which directed his reign; he was determined to make amends for the faults of his early years, to persevere in a just and pious government, to repress extortion, and in every way to promote the welfare of his subjects. The internal state of the kingdom was one of unprecedented peace and order, during which it recovered from the ravages and misgovernment of the generation pre-

ceding, and he left a happy memory of himself among the people. The well-known story of the rebuke he gave to his flattering courtiers is a proof of this.

Shortly after his secure installation on the English throne, he superseded his brother Harold on that of Denmark; he repelled an attack of the Wends on his dominions there, and in those early times obtained a rectification of the Danish frontier from the emperor of Germany. Though at first unsuccessful in an invasion of Norway, he added that kingdom to his empire in 1023. He was now one of the most powerful and respected rulers of Christendom. He died at Shaftesbury in the twentieth year of his reign.

CANVAS, a name applied to several kinds of stout cloth, made of hemp or linen fibers, and used for the sails of vessels, the ground of oil paintings, and various other purposes. Originally canvas was made solely from hemp, whence the name, which is corrupted from *Cannabis*, the classical and scientific name for the hemp plant. Being most extensively employed as sail-cloth, the term came to designate the sails of a ship generally, for which, however, although hempen canvas is still used, linen or mixed fibers are now more generally preferred.

CANVAS-BACK DUCK (*Fuligula vallisneria*), a wild duck common on our Atlantic coasts. It is a handsome bird, especially the male. The popular name refers to the ashy white color of the male's back, which resembles coarse canvas. *F. americana* or red-head duck is closely allied.

CANZONE, one of the most important forms of Italian lyric poetry.

CAOUTCHOUC. See INDIA-RUBBER.

CAPE. A cape is a body of land extending from the mainland into the ocean or sea, usually with a more or less abrupt contour. In their physical characteristics capes are either low and sandy or precipitous and rocky. The surrounding water is usually shallow or broken by reefs, which fact, with additional exposure to the winds, renders navigation about such points difficult and dangerous. The following are the prominent capes on the coasts of America: Cape Ann, at the eastern extremity of Essex county, Mass.; Cape Au Fer, off the southern coast of Louisiana; Cape Blanco, the westernmost point of Curry county, Ore.; Cape Charles, the southern point of Northampton county, Va., at the entrance to Chesapeake Bay; Cape Cod, on the coast of Massachusetts, adjoining Barnstable county; Cape Conaveral, on the eastern coast of Florida, southeast of St. Augustine; Cape Colnett, off the western coast of Lower California; Cape Disappointment, at the extreme southwestern point of Washington; Cape Fear, the southern point of Smith's island, at the mouth of Cape Fear river, N. C.; Cape Flattery, at the northwestern point of Washington; Cape Gaspé, in the Gulf of St. Lawrence, off Quebec, Canada; Cape Hatteras, in Pamlico sound, off North Carolina; Cape Henlopen, at the entrance to Delaware Bay, on the eastern coast of Delaware; Cape Henry, at the mouth of Chesapeake Bay, off the northeast coast of Virginia; Cape Horn, the most southern point of America, off the extreme southern of the islands comprising the Fuegian Archipelago; Cape May, the southern extremity of New Jersey; Cape Mendocino, in Humboldt county, Cal., and the most extreme western point in that State; Cape St. Blas or San Blas, a point of land off the south coast of Florida, 126 miles from Pensacola, in a southeasterly direction; Cape St. George, the southern extremity of the island of St. George, off Franklin county, Fla.

CAPE BRETON, an island of British America, to the north-east of Nova Scotia, from which it is separated by a strait about fifteen miles long and a mile wide,

known as the Gut of Canceau or Canso. Its length from north to south is about 110 miles, its width about 87 miles, and its area 2,650,000 acres. Nearly covered with forest at the time of its discovery, it still exports pine, oak, beech, maple, birch and ash. Oats, wheat turnips, and potatoes are extensively cultivated; horses, cattle and sheep are reared in considerable numbers; and cheese and butter form important items in its produce. Coal, limestone, and gypsum are worked, and excellent iron ore and slate are also to be found. Cape Breton was probably discovered by Sebastian Cabot, and its name is understood to have been bestowed in remembrance of Cape Bréton, near Bayonne, by the Basque sailors who early began to frequent the coast.

CAPE COAST CASTLE, or CABO CORSA, the capital of the British settlement on the Gold Coast of Western Africa, is situated in Upper Guinea, about seventy miles west of Acra. With the exception of the European residences and the houses of the wealthier natives, which are built of brick, the town is composed of "swish" or mud huts, with thatched roofs. The population is stated at 10,000, and consists mainly of negroes of the Fanti tribe, with a sprinkling of mulattoes, and a colony of Kroomen.

CAPE COLONY is a large tract of country which forms the most southern part of the continent of Africa, a colony of Great Britain since 1806, named from the Cape of Good Hope, a small promontory on its southwest coast, from the neighborhood of which the Dutch settlers of 1652 spread out over the land. West and south are the Atlantic and Indian Oceans; the Orange River forms the boundary of the colony proper on the north, separating it from Great Namaqua Land, the Kalahari desert, and the Orange River Free State; eastward its limit runs from the Tees River, a head-stream of the Orange, along the Storm Berg and down the Kei River from its most easterly source-stream to its mouth, which line separates the colony from Free Kaffre Land, and includes within it the divisions of British Kaffraria added to the colony in 1865. Besides this chief area the colony includes various recently added irregular provinces; these are—the agency of *Basuto Land*, annexed in 1871, consisting of the high valleys of the source-streams of the Orange River, sloping down inward from the Drakenberg mountains, which separate this territory from the colony of Natal; *Herschel*, a native district immediately south of Basuto Land; the magistracy of *Nomansland*, including Griqua Land East, a native territory of northern Kaffraria on the seaward slope of the Drakenberg south-west of Natal; *St. John's Territory*, or the upper basin of the St. John's or Umzimvubu River on the slopes of the Drakenberg in Central Kaffraria; *Fingo Land* and the *Idutywa Reserve*, or the Transkeian territories of southern Kaffraria, bounded by the Bashee River; and *Tambookie Land*, between the Bashee and the Umtata.

The lieutenant-governorship of *Griqua Land West*, better known as the district of the South African diamond fields, which lies north of the Orange River and west of the Free State, annexed to the British empire in 1871, is strictly a separate dependency of the Crown, but is so intimately connected with the Cape Colony as to be necessarily described along with it.

The extreme breadth of the colony from north to south is about 500 miles, and its length from east to west about 800, its area comprising 230,000 square miles.

The Tafel Berg or Table Mountain, the well-known landmark of the coast, and the nucleus of the peninsula of the Cape of Good Hope, rises to 3582 feet. Though the mountains of the colony and the plateaus between them present bold and picturesque outlines of sharply-

defined ranges and vast level plains, the landscape excepting in the coastal districts, is bare and uninviting, and deficient in waters and tree-growth.

Nearly two-thirds of the surface of Cape Colony consists of vast arid plains, covered, however, with shallow beds of the richest soil, which only requires the fertilizing power of water to render it available for pasture or agriculture. After the periodical rains, the plateau of the "Karoo" and the great plains of Bushmanland present the appearance of vast fields of grass, but the summer sun reduces them again to a barren and burnt-up aspect.

The discovery of diamonds north of the Orange River, an event which gave great impetus to all affairs of the colony, was made in 1867, and in the following years people from all parts of the world flocked to the fields. These lie in the eastern portion of the territory known as Griqua Land West, which, as a consequence of the discovery, was annexed to the British empire in 1871. The mining has now become a settled industry, with its accompaniment of a fixed population and rapidly growing towns. The fields extend between the lower Vaal River and its tributary the Modder; in this region the diamond-producing rock is found in fragments mingled with the detritus of other rocks, occupying various depressions known as "pans," or in the deep torrent beds of the rivers. The diggings are thus distinguished as the *wet*, which lie chiefly along the lower Vaal river, and have been almost abandoned, and the *dry* mines, about Kimberley, Du Toits pan, and Bulfontein farther south. One of the largest diamonds at first discovered in this region weighed 83 carats, and realized \$55,000; several much larger ones have since been found, one of more than 200 carats. Iron ores, hematite, and magnetite abound also in this region, the deficiency of fuel alone prevents the working of mines of great richness.

We have seen that the great water-parting mountain chain of the colony passes through the centre of the country in a curve parallel to the coast line, from the inner border of Natal to near the western Atlantic coast, forming an outward watershed to the sea of about 100 miles in width, and an inner shed to the Orange River. The streams of the outer shed are constant only in the extreme east of the country; towards the south-west and on the Atlantic coastland their supply is irregular. All partake of the character of mountain torrents,—having numerous falls, flowing in deeply-cut channels, and being low and feeble (in some cases dry) for the greater part of the year, but swollen and rapid in rainy weather.

Lakes are unknown in Cape Colony. Springs are frequent, and in sandstone districts afford excellent water, but in the Karroo country they are generally brackish. Hot or mineral springs occur in several districts.

In general character the climate of the Cape Colony is dry, highly salubrious, and milder than that of England; the atmosphere is clear and buoyant. So extensive, however, is the country, and so diversified in aspect and elevation, that there are naturally many varieties of climate within its limits.

Ophthalmia and rheumatism are perhaps the only diseases of the colony which are at all prevalent; low fevers are common on the flat western coastlands.

Though much of the land of the colony is dry and barren, the flora of the more fertile portions is remarkable and varied. The forests are confined to the outward slopes of the extreme margins of the colony,—the only patches of wood deserving the name being found in the Cedar Berg in the west, on two sides of Table Mountain, on the Outeniqua mountains facing the south coast, on the Olifants Hoek near Port Elizabeth, in the





vicinity of King William's Town in British Kaffraria, and in the district of the Katberg or Stockenstroom farther inland. The inner slopes of Griqua Land East are also wooded. These patches of forest contain a great variety of useful woods, affording excellent timber; among the commonest trees are the yellow wood, which is also one of the largest, belonging to the yew species; black iron wood; heavy, close-grained, and durable stinkhout; melkhout, a white wood used for wheelwork; nieshout; and the assegai or Cape lancewood.

In no other country do bulbous plants and heaths exhibit so many beautiful varieties; of the latter several hundred varieties are described.

Of the cereals, wheat is grown throughout the colony, but chiefly in the low marginal division of the south-west and in the eastern midland districts; barley and oats are general. Rye gives its name to the Roggeveld in the west, and is chiefly grown there and in the lower hills of Namaqua Land; maize and millet are cultivated in all moist situations of the north-east of the colony. Rice might be extensively cultivated, and flourishes on the inundated banks of the Olifants River in the west; the growth of potatoes has been much extended; melons, cucumbers, beans, and pease are grown universally where there is water. Cotton has been introduced experimentally in some districts; the cultivation of tobacco is wide spread, that of the division of George, grown in the valley of the eastern Olifants River, being most reputed.

The larger and more important of the wild animals which once gave the Cape Colony the character of the great hunting ground of the world have retreated before advancing civilization, and few are now found within the frontier. The lion is only to be met with now in the northern districts of Bushmanland and in the extreme north-eastern portion of the colony, and rarely in British Kaffraria. The elephant, which also abounded at the time of the first Dutch settlement, is now almost extinct in the colony, few only existing in the forests between Knysna and the Zondag River in the extreme south. The rhinoceros and giraffe have been driven far outside the frontier. Hippopotami are only found in the coast rivers of British Kaffraria and in the lower Orange River. The buffalo remains only perhaps in Knysna forests and in the thickets of Great Fish River. The Cape leopard, the hyena, the aard wolf or *Proteles*, and the jackal alone keep their ground, and are still common in the colony. Quaggas and zebras are met with in large herds in the plains of the Vaal, and sometimes extend into the colony as far as the divisions of Cradock and Graaf Reinet, where the gnu, hartebeeste, and brindled gnu are also seen. Of the many varieties of South African antelope the larger kinds — the eland, koodoo, and sable and roan antelopes — are now banished from the colony, though the smaller varieties are found along the coast region, and migratory herds of springbok invade the plains of Bushmanland and Little Namaqua Land at certain seasons. Ostriches, once numerous, are still thinly scattered over the colony, though the supply of feathers is now mainly derived from regions north of the Orange River. Ostrich farming and artificial incubation, carried on in the northern, western, and eastern divisions, have, however, become of late years one of the most profitable industries of the Cape, — the feathers being worth from £30 to £60 per lb.

Birds of prey, including the bearded vulture, aasvogel, and several varieties of eagles, hawks, and falcons, are numerous; cranes, stocks, flamingoes, and pelicans are in large variety; partridges and pheasants, guinea fowl, and quails abound. The bustard is found in several kinds, as well as ducks, wild geese, and plovers.

Upwards of forty varieties of edible fishes are caught in the seas surrounding the Cape Colony, the waters of

which also teem with whales, seals, and sharks. Reptiles are exceedingly numerous; among the venomous snakes are the cobra di capello and the puff adder; large toads and frogs are also common, as are scorpions, tarantula spiders, hornets, and stinging ants.

Sheep, cattle, and dogs of an inferior breed were possessed by the natives on the discovery of the country. Horses, asses, goats, and cattle, introduced by the earlier colonists, were found to thrive well. The merino breed of sheep is now rapidly taking the place of the big-tailed sheep of the Dutch settlers; and some of the central divisions have immense sheep farms, producing the wool which is the great staple of the country's export trade. The angora goat is now extensively farmed, the hair being largely exported. Cows of the finest breeds have also been imported; the introduction of the English horse does not, however, appear to have been successful, the older, heavier Spanish breed being better adapted to the wants of the country.

The Cape of Good Hope was discovered by Bartholomew Diaz, the Portuguese navigator, in 1486. He first landed at Algoa Bay, having, after exploring the west coast, been driven out to sea by a storm. Thus accidentally doubling the Cape, he saw it on his way back, and gave it the name of the Cape of Storms (Cabo Tormentoso).

The king of Portugal, however, gave it the more auspicious name it now bears, as its discovery afforded a hope of a new and easier way of reaching India, the great object of all the maritime expeditions of that age.

The great navigator Vasco de Gama doubled the Cape in 1497, and carried the Portuguese flag into the Indian seas. His countrymen, however, attracted by the riches of the East, made no permanent settlement at the Cape, although they frequently touched there on the voyage to India. But the Dutch, who, on the decline of the Portuguese power, established themselves in the East, early saw the importance of the place as a station where their vessels might take in water and provisions. They did not, however, colonize it till 1652, when the Dutch East India Company directed Jan Van Riebeeck, with a small party of colonists, to form a settlement there. The country at that time was inhabited by a people called Quæquæ, but to whom the Dutch seem to have given the name of Hottentots.

In 1795 the colonists, having imbibed the revolutionary principles then prevailing in Europe, attempted to throw off the yoke of the Dutch, upon which the British sent a fleet to support the authority of the Prince of Orange, and took possession of the country in his name. As, however, it was evident that Holland would not be able to hold it, and that at a general peace it would be made over to England, it was ruled by British governors till the year 1802, when at the peace of Amiens, it was again restored to Holland. In 1806, on the renewal of the war, it was again taken by the British under Sir David Baird, and has since remained in their possession, having been finally ceded by the king of the Netherlands at the peace of 1815. At this time the limit of the colony was formed by the Great Fish River and the line of the mountains south of Bushmanland to the Buffels River and the Atlantic, the area being about 120,000 square miles, and the population little over 60,000.

The major part of the population of the colony, consists of Hottentots, Malays, Negroes, and Kaffres. Owing to inter-marriages with Malays, Negroes, and others, and illicit intercourse with the whites during the period of slavery, the race has lost much of its distinctive character. In 1865 the number of people distinguished as Hottentots was 82,000, nearly two-thirds of whom were found in the western division. The Malays

were introduced by the Dutch as slaves; their descendants still retain the Mahometan religion, and most of the distinctive habits and customs of their race. We have no means of ascertaining their number, but it cannot be large. They are found chiefly resident in the seaports. The negroes are mostly from the eastern coasts of Africa. Griquas or Baastards are a mixed race sprung from the intercourse of the Dutch boers or farmers with their Hottentot slaves. A great number of them migrated from the colony in the early part of this century with the boers, and settled between the Orange River and the Vaal under the chiefs Waterboer and Adam Kok, in part of the territory now known as Griqua Land West. In 1852 Kok's people (about 15,000 in number) separated from the others, and migrated to the district called Nomansland south of Natal, which had been depopulated by the strifes of the Amaondo and Amabaca Kaffres, forming there the settlement called Griqua Land East or New Griqua Land.

The line of division between the native Hottentot (or Bushman) and Kaffre races of South Africa passes south through the Cape Colony in about 26° E. long. The Kaffres now resident within the colony proper are chiefly of the tribe of the Amaxosa, with whom the colonists first came in contact at the line of the Great Fish River in 1778, and the Fingoes, who originally came from Natal and its vicinity; driven thence early in the present century by Chaka, a warlike chief of the Zulu Kaffres, they took refuge with the tribes on the border of Cape Colony. There they were reduced to a state of serfdom, from which they were liberated by Sir Benjamin D'Urban after the third Kaffre war of 1835, when a body of 16,000 of them came into the colony and settled in what is now the division of Peddie. From this, again, the greater part of the Fingoes have moved to the district now called Fingo Land, east of the River Kei, recently joined to the colony. In 1865 the number of Kaffres within the limits of the colony was not less than 164,500.

The Cape Colony possesses important British military and naval stations, and the establishment maintained by the Home Government has always been very considerable. This was especially the case during the Kaffre wars. In recent years, however, a gradual reduction of the number of imperial troops in the colony has taken place. In 1873 two British infantry regiments, with detachments of the Royal Artillery and Engineers, were quartered in the colony; but these are kept at the Cape rather for the purposes of the Home Government than for the domestic defence of the colony. A force named the Frontier Armed and Mounted Police was organized for the latter purpose in 1853, and has been specially serviceable in quelling disturbances on the interior borders of the country. This force is divided into seven troops, and numbers 750 men. Small volunteer corps of rifles and cavalry have been organized at various points of the eastern and western divisions.

The greater number of the Protestant denominations of the United Kingdom, as well as the Roman Catholic Church, are represented in Cape Colony. The Dutch Reformed Church, as might be anticipated from the early history of the country, is by far the most numerous community. In form of government and in order of service it closely resembles the Church of Scotland, to which country a considerable number of its ministers belong. The Church of England has, perhaps, the next smaller number of adherents. In 1847 a bishop of Cape Town was appointed to preside over this church, whose diocese extended not only over Cape Colony and Natal, but also over the island of St. Helena.

As early as 1839 a scheme of public schools, drawn

up by Sir John Herschel, came into operation, which was well adapted to the condition and circumstances of the colony at that time. The Education Act of 1865, now in operation, is an advance on this system, and provides three orders of schools adapted to the wants of the main grades of the population, the Europeans, mixed races, and pure natives. These orders comprise — (1) Undenominational public schools in each division of the colony in three classes, subject to the inspection of a superintendent-general of education, and having teachers whose salaries are guaranteed; (2) Schools established by missionary societies to which Government aid is granted under certain conditions for secular education; (3) Day schools and industrial institutions for the civilization of the aborigines on the frontiers of the colony. For higher education there are several colleges. The South African college in Cape Town was founded in 1829, and in its higher classes prepares for the European universities and for colonial examinations; the college has a grant of £400 annually from Government.

The first newspaper of the colony, written in Dutch and English, was published in 1824, and its appearance marked an era not only in the literary but in the political history of the colony, since it drew to a crisis the disputes which had arisen between the colonists and the somewhat arrogant governor, Lord Charles Somerset, who had issued a tyrannical decree prohibiting all persons from convening or attending public meetings. Its criticisms on public affairs soon led to its suppression by the governor, and a memorial from the colonists to the king petitioning for a free press was the result. This boon was secured to the colony in 1828, and the press soon became a powerful agent, characterized in an especial manner by public spirit and literary ability. There are now about fifty newspapers and periodicals in English and Dutch, published in the Cape Colony and Natal.

The imports of the colony consist mainly of manufactured goods, cloths, and hardwares, sugar and tobacco. The revenue of the colony is derived chiefly from an *ad valorem* tax on all goods imported (with the exception of agricultural machinery, animals, bullion, books, and unmanufactured African products), and on land sales and rents, and from a tax called transfer-dues on the purchase money of all landed property sold, stamp-duties, and postages. The expenditure is for payment of salaries of officials and support of government. The colony incurs the expense of the regiments of Cape mounted riflemen and police, but the British troops in the colony are maintained by the Imperial Government at an annual cost of about £200,000.

CAPE TOWN, the capital and seat of government of Cape Colony, lies at the head of Table Bay, on the northern side of the peninsula formed by Table Mountain, and 30 miles north of the Cape of Good Hope. It was founded in 1652 by Van Riebeeck, and at first consisted of a few houses under the shelter of a fort, at the mouth of the Zoeta or "Sweet Stream," on the site of which the still existing castle was built. The chief streets of the increasing town were subsequently laid out at right angles, but the outer streets and suburbs extend irregularly upwards. The town is now paved, and lighted with gas, and has a regular water supply.

The town is a municipality governed by a mayor and council. Its population, amounting in 1888 to nearly 60,000, is formed of many races; people of Dutch descent are still more numerous than British, but all European nations are represented. The "coolie" or laboring population comprises the descendants of negro slaves, and half-bred Hottentots and Kaffres; the Malays form a numerous class.

The scenery round the head of Table Bay is very strik-

ing. Table Mountain, with its branches the Devil's Peak and Lion's Head, rises in a massive wall immediately at the back of Cape Town. During the prevalence of south-east winds it is covered by a dense whitish cloud, partially overlapping its side like a table-cloth. Along the base of this mountain, where lie the suburban villages of Rondebosch, Claremont, Wynberg, and Constantia, the land is covered with luxuriant vegetation, including oaks and firs, with gardens of flowers and shrubs (especially of heaths) and vineyards, and is studded with villas.

CAPE ELIZABETH TOWNSHIP AND CAPE ELIZABETH DEPOT, situated in Cumberland County, Me., a short distance south of Portland. The township is traversed by the Boston and Maine, Portland and Ogdensburgh, and Portsmouth, Saco and Portland railroads, and several villages, including Cape Elizabeth Depot, are embraced within its area. The State Reform School is also located here, and seven churches, a high school, district schools, etc., are situated at various accessible points throughout the township. The district has manufactories of fancy cabinet ware, white lead and paints, linseed oil, patent medicines, and hardware specialties. Cape Elizabeth Depot, the most important village in the township, is one mile south of Portland, of which city it is a suburb, containing schools, churches, and many residences. Population, 5,209.

CAPE GIRARDEAU, one of the oldest cities in the Mississippi Valley, is situated on the Mississippi river, in Cape Girardeau county, Mo., 150 miles south of St. Louis. The Cape Girardeau and Southwestern railroad affords communication with the interior of the State, and steamers connect the city with St. Louis and points on the Western rivers. The city contains one bank, two weekly papers, a semi-monthly magazine, ten churches, graded schools, etc., and is the location of St. Vincent's College and the Normal School of Southeastern Missouri. The manufactures include tobacco, flour, lumber, paints, and other commodities. The population is 4,288.

CAPE HAYTIEN, or **CAP HAITIEN**, a town on the north coast of the island of San Domingo, in the republic of Hayti, about $19^{\circ} 46' N.$ lat. and $72^{\circ} 14' W.$ long. The population at present is estimated at 12,000; but in last century it is said to have exceeded 38,000.

CAPE MAY CITY, one of the most fashionable and attractive summer resorts in the United States, is on the Atlantic Ocean, at the southern extremity of New Jersey, eighty-one miles south of Philadelphia, on the West Jersey railroad. The city contains six churches, two weekly papers, and a large number of elegantly appointed residences, hotels, places of amusement, etc., and enjoys a world-wide reputation for its many attractive features. The city has a permanent population of about 2,500.

CAPE VERD ISLANDS. This group, situated in the Northern Atlantic Ocean, consists of ten islands, viz.:—Sant' Antao (commonly miswritten St. Antonio), São Vicente, Santa Luzia, São Nicolao, Sal, Boa Vista, Maio, San Thiago (the St. Jago of the English), Fogo, and Brava, besides a few uninhabited islets. The archipelago was partially discovered in 1441 by an expedition fitted out by Dom Henrique of Portugal, under Antonio and Bartolomeo di Nolli; but no settlement was made on the islands till after the voyage of Cada Mosto in 1456.

It is most probable that the islands were uninhabited at the period of the Portuguese discovery. The new settlers, however, imported negroes from the African coast. The population now amounts to upwards of 70,000, and would have been much greater if famine, caused by droughts and epidemics, had not frequently dim-

inished it. The blacks and mulattoes far outnumber the whites, whose constitution is less suited to the climate. Slavery existed in the islands in full force until the Portuguese Government set free the public slaves in 1854, and modified the condition of those who belonged to private individuals. At that time the number of persons subjected to "involuntary servitude" amounted to about 6000, but at the census of 1860 they had been reduced to 3979. Criminals are transported thither from the mother country and the punishment is much dreaded. All the towns are poor, dirty places; even the best have few tolerable houses. The people are mild and hospitable, but indolent and uncleanly. In religion they are Roman Catholics. They are extremely ignorant and superstitious, and many heathen notions and practices prevail among them, brought from the African coast. All the inhabited islands have churches, except S. Luzia. The language is a bastard Portuguese, known to the people of the mother country as *lingua creoula*.

The atmosphere in the vicinity of these islands is generally hazy, especially in the direction of the continent. With occasional exceptions during summer and autumn, the north-east trade is the prevailing wind, blowing most strongly from November to May. The rainy season is during the months of August, September, and October, when there is thunder and a light variable wind from south-east or south-west, which is principally due to the close approach of the inner margin of the north-east trade winds, and the in-draught to the neighboring continent, occasioned by the rarification of the air over the Sahara. The Harmattan, a very dry east wind from the African continent, occasionally makes itself felt.

The chief occupation of the islanders is cattle-feeding. In some of the islands the making of salt from sea-water employs a considerable number of persons. Cocoa-nut trees, date-palms, tamarinds, and bananas are seen on most of the islands. Pumpkins, sweet potatoes, and the *kalo* are generally cultivated. Wood, except in the interior of S. Antao, is entirely wanting, and the people are often reduced to great straits for firing.

Quails are found in all the islands; rabbits in Boa Vista, and in San Thiago and Fogo. Goats and asses are reared, and the skins of the former are exported. The neighboring sea abounds with fish, and the coral animal is at work building up dangerous reefs on submerged rocks. Turtles come from the African coast to lay their eggs on the sandy shores.

The exports consists chiefly of coral, salt, physic-nuts, hides, coffee, maize, kidney-beans, sugar-cane spirit, and coarse sugar. The imports are cotton cloths, timber, hardware, crockery, glass, and wine.

CAPEFIGUE, **BAPTISTE HONORÉ RAYMOND**, a French historian and biographer, was born at Marseilles in 1801. At the age of twenty he left his native town in order to study law at Paris; but he soon deserted law for journalism. He became editor of the *Quotidienne*, and was afterwards connected, either as editor or leading contributor, with the *Temps*, the *Messenger des Chambres*, the *Revolution de 1848*, and other papers. During the ascendancy of the Bourbons he held a post in the Foreign Office, for which he was indebted to the royalism of some of his newspaper articles. Indeed all Capefigue's works receive their color from his legitimist politics; he preaches divine right and non-resistance, and finds polite words for even the profligacy of Louis XV. and the worthlessness of his mistresses. He died at Paris in December 1872.

CAPEL, **ARTHUR**, **LORD**, was the son of Sir Henry Capel. His birth year is not accurately known; but it was about 1600. In 1640 he was chosen to represent

the county of Hertford, and sat as a member of the Long Parliament, which was convened that year. He was elevated to the peerage by Charles I.; and on the breaking out of the revolutionary war he raised and maintained a troop in the royal interest, till the final triumph of the Parliamentarians compelled him to make peace with them. During the war he acted, together with Edward Hyde and Lord Colchester, as general in the west, and was concerned in important engagements at Bristol, Exeter, and Taunton. Having with noble devotion reassembled his troop in order to effect the rescue of Charles, he was forced by famine and sedition to surrender at Colchester to General Fairfax, and was condemned by the Commons to be banished; but on the authority of some of the Parliamentary leaders he was immediately committed to the Tower. He contrived to effect his escape from prison, but was apprehended at Lambeth, and again committed to stand his trial at Westminster for treason. He was condemned to death, and was executed on the 9th of March, 1649.

CAPELIN (*Mallotus villosus*), a genus belonging to the salmon family, and nearly related to the smelt. It is one of the smallest members of the family, lives on the sea-bottom off the northern coast of the Atlantic, comes to the surface to spawn, and furnishes one of the most important parts of the cod's food.

CAPELL, EDWARD, annotator of Shakespeare, was born at Troston, in Suffolk, in 1713. He died in 1781.

CAPELLA, MARTIANUS MINEUS FELIX, author of a curious encyclopædic work on the liberal arts, was born in the north of Africa, and flourished probably towards the beginning of the 5th century A.D., or at least during the 4th century.

CAPERCALLY, or **CAPERKALLY**, — to use the spelling of the old law-books, as given by Pennant, the zoologist, who, on something more than mere report, first included this bird among the British Fauna. The Cock-of-the-wood is remarkable for his large size and glossy-black plumage. He is polygamous, and in spring mounts to the topmost bough of a tall tree, whence he challenges all comers by extraordinary sounds and gestures; while the hens, which are much smaller and mottled in color, timidly abide below the result of the frequent duels, patiently submitting themselves to the victor. While this is going on it is the practice in many countries, though generally in defiance of the law, for the so-called sportsman stealthily to draw nigh, and with well-aimed rifle to murder the principal performer in the scene. The hen makes an artless nest on the ground, and lays therein from seven to nine or even more eggs. The young are able to fly soon after they are hatched, and towards the end of summer and beginning of autumn, from feeding on the fruit and leaves of the bilberries and other similar plants, which form the undercover of the forests, get into excellent condition and become good eating. With the first heavy falls of snow they betake themselves to the trees, and then, feeding on the pine leaves, their flesh speedily acquires so strong a flavor of turpentine as to be distasteful to most palates.

CAPERNAUM, an ancient city of Palestine, on the western shore of the Lake of Gennesareth, on the borders of the tribes of Zebulun and Naphtali. It was, more than any other place, the residence of Jesus after He commenced His mission, and thus became the scene of many of His most important miracles; but the infidelity of the inhabitants brought down upon them the heavy denunciation: — "And thou, Capernaum, which art exalted unto heaven, shalt be brought down to hell." The site of the city is a matter of much dispute, — one party, headed by Dr. Robinson, maintaining an identification with Khan Minyeh, and another, represented

by Wilson, Ritter, and Thomson, supporting the claims of Tell Hum. Khan Minyeh is situated in a "fertile plain formed by the retreat of the mountains about the middle of the western shore." The ruins, according to J. L. Porter, extend over a space of several acres; and in the neighborhood is a water-source, Aint et-Tin "the fountain of the fig-tree," which may correspond with the fountain of Capernaum mentioned by Josephus. Tell Hum lies about three miles north of Khan Minyeh, and its ruins, covering an area of "half a mile long by a quarter wide," prove it to have been the site of no small town. The satisfactory decision of the question can only be arrived at by more elaborate researches.

CAPERS, the unexpanded flower-buds of *Capparis spinosa*, prepared with vinegar for use as a pickle, which is much esteemed. The caper plant is a trailing shrub, belonging to the Mediterranean region, resembling in habit the common bramble, and having handsome flowers of a pinkish white, with four petals, and numerous long tassel-like stamens. The leaves are simple and ovate, with spiny stipules. The plant is cultivated in Sicily and the South of France; and in commerce, capers are valued according to the period at which the buds are gathered and preserved. The finest are the young tender buds called "nonpareil," after which, gradually increasing in size and lessening in value, come "superfine," "fine," "capucin," and "capot." They possess valuable stimulant, acid, and anti-scorbutic properties similar to the *Cruciferae*. Other species of *Capparis* are similarly employed in various localities, and in some cases the fruit is pickled.

CAPET, the name of a family, to which, for nearly nine centuries, belonged the kings of France and many of the rulers of the most powerful fiefs in that country, and which mingled with several of the other royal races of Europe.

The first of the Capets known in history was Robert the Strong, a Saxon who received from Charles the Bald the county of Anjou, and, later, in 861, the duchy of the Ile de France, and who gained popularity by his repulse of the marauding Normans. The most distinguished of his successors were Eudes, Robert, Rudolph, who succeeded to the dukedom of Burgundy in 888, 922, and 923 respectively, and Hugh the Great, count of Paris and Orleans, duke of France and Burgundy, who held vast domains from the Loire to the frontiers of Picardy. His son, Hugh Capet (987-996), being supported by the Normans and by his brother, the duke of Burgundy, was, in 987, elected king by acclamation, and crowned at Rheims, in place of the Carolingians, who were hated for their German manners and their desire to reconstruct the empire. The Capets, on the contrary, for some time avoided all such pretensions, and carefully maintained friendship with the church and the nobles, among whom they claimed to be no more than *primi inter pares*, and over whom they scarcely attempted to exert the slightest authority. By following this policy, they firmly established themselves on the throne, the influence of which they greatly extended by marriages, treaties, and conquests, and which the family continued to hold, after the failure of the direct royal line, at the death of Charles IV. in 1322, by the accession of the indirect lines of Valois, which reigned from 1322 to 1589, and of Bourbon, the last monarchical dynasty of France (see FRANCE).

The royal house of Valois was founded by Philip VI., son of Charles de Valois, second son of Philip III. (see VALOIS); and the house of Bourbon (whose family name was Capet) was connected with the Capets by the marriage, in 1272, of Robert, the sixth son of Louis IX., to Beatrice, the sole heiress of Agnes of Bourbon and the duke of Burgundy (see BOURBON).

Scarcely second in importance to the royal house is the branch to which belonged the dukes of Burgundy. In the 10th century Burgundy fell into the hands of Hugh the Great, father of Hugh Capet, who gave it, in 956, to his son Otho, and in 965 to his son Henry. In 1032 the second son of Robert the Pious, and grandson of Hugh Capet, founded the first ducal house, which ruled till 1361. For two years the duchy was in the hands of the Crown, but in 1363, the second ducal house, also Capetian, was founded by Philip the Bold, son of king John (see BURGUNDY). This branch of the Capets is also distinguished by its union with the royal house of Austria, through the marriage of Mary, daughter of Charles the Bold of Burgundy, to Maximilian, the archduke.

Of great importance also was the house of Anjou, which was founded by Charles, brother of Louis IX., Anjou having been ceded, with other provinces, by John of England to Philip Augustus, the grandfather of Charles. For an account of the counts and dukes of Anjou see ANJOU. Members of this family sat upon the thrones of three kingdoms. The counts of Anjou were also kings of Naples from 1226 to 1382; in 1309 Charles Robert of Anjou was elected king of Hungary, his claim being based upon the marriage of his ancestor with the daughter of Stephen IV. of Hungary; and, in 1445, Margaret, daughter of Duke René, married Henry VI. of England.

A third branch formed the house of Artois, which was founded, in 1226, by Robert the illustrious, grandson of Philip Augustus, who gained possession of Artois by his marriage with Isabella of Hainault. This house merged in that of Valois, in 1383, by the marriage of Margaret of Artois with Philip the Hardy.

The throne of Navarre was also filled by the Capets. In 1284 its heiress, Jane, became the wife of Philip the Fair of France, and the two kingdoms were united till Philip of Valois ascended the French throne, when its queen, Jane, daughter of Louis X., married (1328) into the house of Evreux (see NAVARRE).

In the 13th century the throne of Constantinople was occupied by a branch of the Capets,—Pierre, eighth son of Louis VI., having obtained that dignity as brother-in-law of Baldwin count of Flanders (who was appointed emperor by the Crusaders in 1204) and of his successor Henry. Pierre was succeeded by his two sons, Robert and Baldwin de Courtenai, from the latter of whom Constantinople was recovered by the Greeks in 1261.

The counts of Dreux, for two centuries and a half (1132–1377), and the counts of Evreux, from 1307 to 1425, also belonged to the family of the Capets,—other members of which worthy of mention are the Dunois and the Longuevilles, illegitimate branches of the house of Valois, which produced many famous warriors and courtiers.

CAPGRAVE, JOHN, an English historian, was born at Lynn, England, April 21, 1393, and died in 1464.

CAPIAS, in the practice of the common law, is a writ directed against the person, and so called from the commencement of the process in the old Latin form. It has various applications, the principal of which are the following: CAPIAS AD RESPONDENDUM, a writ still used sometimes, instead of a justice's warrant, for the arrest of one against whom an indictment for misdemeanor has been found. CAPIAS AD SATISFACIENDUM, or CA. SA., one of the writs by which a plaintiff can put a judgment recovered by him in execution. The object of it is to imprison the debtor till satisfaction.

CAPILLARY ACTION. A tube, the bore of which is so small that it will only admit a hair (*capilla*), is called a capillary tube. When such a tube of glass,

open at both ends, is placed vertically with its lower end immersed in water, the water is observed to rise in the tube, and to stand within the tube at a higher level than the water outside. The action between the capillary tube and the water has been called Capillary Action, and the name has been extended to many other phenomena which have been found to depend on properties of liquids and solids similar to those which cause water to rise in capillary tubes.

The forces which are concerned in these phenomena are those which act between neighboring parts of the same substance, and which are called forces of cohesion, and those which act between portions of matter of different kinds, which are called forces of adhesion. These forces are quite insensible between two portions of matter separated by any distance which we can directly measure. It is only when the distance becomes exceedingly small that these forces become perceptible. Quincke has made experiments to determine the greatest distance at which the effect of these forces is sensible, and he finds for various substances about the twenty-thousandth part of a millimetre.

Poggendorf tells us that Leonardo da Vinci must be considered as the discoverer of capillary phenomena.

The first accurate observations of the capillary action of tubes and glass plates were made by Hauksbee. He ascribes the action to an attraction between the glass and the liquid. He observed that the effect was the same in thick tubes as in thin, and concluded that only those particles of the glass which are very near the surface have any influence on the phenomenon.

Dr. Jurin showed that the height at which the liquid is suspended depends on the section of the tube at the surface of the liquid, and is independent of the form of the lower part of the tube. He considered that the suspension of the liquid is due to "the attraction of the periphery or section of the surface of the tube to which the upper surface of the water is contiguous and coheres." From this he shows that the rise of the liquid in tubes of the same substance is inversely proportional to their radii.

It is to be observed that, while these early speculators ascribe the phenomena to attraction, they do not distinctly assert that this attraction is sensible only at insensible distances, and that for all distances which we can directly measure the force is altogether insensible. The idea of such forces, however, had been distinctly formed by Newton, who gave the first example of the calculation of the effect of such forces in his theorem on the alternation of the path of a light-corpuscle when it enters or leaves a dense body.

Clairaut appears to have been the first to show the necessity of taking account of the attraction between the parts of the fluid itself in order to explain the phenomena. He does not, however, recognize the fact that the distance at which the attraction is sensible is not only small but altogether insensible.

Segner introduced the very important idea of the surface-tension of liquids, which he ascribed to attractive forces, the sphere of whose action is immeasurably small. In attempting to calculate the effect of this surface-tension in determining the form of a drop of the liquid, Segner took account of the curvature of a meridian section of a drop, but neglected the effect to the curvature in a plane at right angles to this section.

But the idea of surface tension introduced by Segner had a most important effect on the subsequent development of the theory. We may regard it as a physical fact established by experiment in the same way as the laws of the elasticity of solid bodies. We may investigate the forces which act between finite portions of a liquid in the same way as we investigate the forces

which act between finite portions of a solid. The experiments on solids lead to certain laws of elasticity expressed in terms of coefficients, the values of which can be determined only by experiments on each particular substance. Various attempts have also been made to deduce these laws from particular hypotheses as to the action between the molecules of the elastic substance. We may therefore regard the theory of elasticity as consisting of two parts. The first part establishes the laws of the elasticity of a finite portion of the solid subjected to a homogeneous strain, and deduces from these laws the equations of the equilibrium and motion of a body subjected to any forces and displacements. The second part endeavors to deduce the facts of the elasticity of a finite portion of the substance from hypotheses as to the motion of its constituent molecules and the forces acting between them.

In like manner we may by experiment ascertain the general fact that the surface of a liquid is in a state of tension similar to that of a membrane stretched equally in all directions, and prove that this tension depends only on the nature and temperature of the liquid and not on its form, and from this as a secondary physical principle we may deduce all the phenomena of capillary action. This is one step of the investigation. The next step is to deduce this surface-tension from an hypothesis as to the molecular constitution of the liquid and of the bodies that surround it. The scientific importance of this step is to be measured by the degree of insight which it affords or promises into the molecular constitution of real bodies by the suggestion of experiments by which we may discriminate between rival molecular theories.

In 1756 Leidenfrost showed that a soap-bubble tends to contract, so that if the tube with which it was blown is left open the bubble will diminish in size and will expel through the tube the air which it contains. He attributed this force, however, not to any general property of the surfaces of liquids, but to the fatty part of the soap which he supposed to separate itself from the other constituents of the solution, and to form a thin skin on the outer face of the bubble.

In 1787 Monge asserted that "by supposing the adherence of the particles of a fluid to have a sensible effect only at the surface itself and in the direction of the surface it would be easy to determine the curvature of the surfaces of fluids in the neighborhood of the solid boundaries which contain them; that these surfaces would be *linteriæ* of which the tension, constant in all directions, would be everywhere equal to the adherence of two particles, and the phenomena of capillary tubes would then present nothing which could not be determined by analysis." He applied this principle of surface-tension to the explanation of the apparent attractions and repulsions between bodies floating on a liquid.

In 1802 Leslie gave the first correct explanation of the rise of a liquid in a tube by considering the effect of the attraction of the solid on the very thin stratum of the liquid in contact with it. He does not, like the earlier speculators, suppose this attraction to act in an upward direction so as to support the fluid directly. He shows that the attraction is everywhere normal to the surface of the solid. The direct effect of the attraction is to increase the pressure of the stratum of the fluid in contact with the solid, so as to make it greater than the pressure in the interior of the fluid. The result of this pressure if unopposed is to cause this stratum to spread itself over the surface of the solid as a drop of water is observed to do when placed on a clean horizontal glass plate, and this even when gravity opposes the action, as when the drop is placed on the under surface of the plate. Hence a glass tube plunged into water would

become wet all over were it not that the ascending liquid film carries up a quantity of other liquid which coheres to it, so that when it has ascended to a certain height the weight of the column balances the force by which the film spreads itself over the glass. This explanation of the action of the solid is equivalent to that by which Gauss afterwards supplied the defect of the theory of Laplace, except that, not being expressed in terms of mathematical symbols, it does not indicate the mathematical relation between the attraction of individual particles and the final result.

In 1804 Thomas Young founded the theory of capillary phenomena on the principle of surface-tension. He also observed the constancy of the angle of contact of a liquid surface with a solid, and showed how from these two principles to deduce the phenomena of capillary action. His essay contains the solution of a great number of cases, including most of those afterwards solved by Laplace, but his methods of demonstration, though always correct, and often extremely elegant, are sometimes rendered obscure by his scrupulous avoidance of mathematical symbols. Having applied the secondary principle of surface-tension to the various particular cases of capillary action, Young proceeds to deduce this surface-tension from ulterior principles. He supposes the particles to act on one another with two different kinds of forces, one of which, the attractive force of cohesion, extends to particles at a greater distance than those to which the repulsive force is confined. He further supposes that the attractive force is constant throughout the minute distance to which it extends, but that the repulsive force increases rapidly as the distance diminishes. He thus shows that at a curved part of the surface, a superficial particle would be urged towards the centre of curvature of the surface, and he gives reasons for concluding that this force is proportional to the sum of the curvatures of the surface in two normal planes at right angles to each other.

The subject was next taken up by Laplace. His results are in many respects identical with those of Young, but his methods of arriving at them are very different, being conducted entirely by mathematical calculations. The form into which he has thrown his investigation seems to have deterred many able physicists from the inquiry into the ulterior cause of capillary phenomena, and induced them to rest content with deriving them from the fact of surface-tension.

The next great step in the treatment of the subject was made by Gauss. The principle which he adopts is that of virtual velocities, a principle which under his hands was gradually transforming itself into what is now known as the principle of the conservation of energy. Instead of calculating the direction and magnitude of the resultant force on each particle arising from the action of neighboring particles, he forms a single expression which is the aggregate of all the potentials arising from the mutual action between pairs of particles. This expression has been called the force-function. With its sign reversed it is now called the potential energy of the system. It consists of three parts, the first depending on the action of gravity, the second on the mutual action between the particles of the fluid, and the third on the action between the particles of the fluid and the particles of a solid or fluid in contact with it.

The condition of equilibrium is that this expression (which we may for the sake of distinctness call the potential energy) shall be a minimum. This condition when worked out gives not only the equation of the free surface in the form already established by Laplace, but the conditions of the angle of contact of this surface with the surface of a solid.

Gauss thus supplied the principal defect in the great

work of Laplace. He also pointed out more distinctly the nature of the assumptions which we must make with respect to the law of action of the particles in order to be consistent with observed phenomena. He did not, however, enter into the explanation of particular phenomena, as this had been done already by Laplace. He points out, however, to physicists the advantages of the method of Segner and Gay-Lussac, afterwards carried out by Quincke, of measuring the dimensions of large drops of mercury on a horizontal or slightly concave surface, and those of large bubbles of air in transparent liquids resting against the under side of a horizontal plate of a substance wetted by the liquid.

In 1831 Poisson published his *Nouvelle Theorie de l' Action Capillaire*. He maintains that there is a rapid variation of density near the surface of a liquid, and he gives very strong reasons, which have been only strengthened by subsequent discoveries, for believing that this is the case. He then proceeds to an investigation of the equilibrium of a fluid on the hypothesis of uniform density, and he arrives at the conclusion that on this hypothesis none of the observed capillary phenomena would take place, and that, therefore, Laplace's theory, in which the density is supposed uniform, is not only insufficient but erroneous. In particular he maintains that the constant pressure K , which occurs in Laplace's theory, and which on that theory is very large, must be in point of fact very small, but the equation of equilibrium from which he concludes this is itself defective. Laplace assumes that the liquid has uniform density, and that the attraction of its molecules extends to a finite though insensible distance. On these assumptions his results are certainly right, and are confirmed by the independent method of Gauss, so that the objections raised against them by Poisson fall to the ground. But whether the assumption of uniform density be physically correct is a very different question, and Poisson has done good service to science in showing how to carry on the investigation on the hypothesis that the density very near the surface is different from that in the interior of the fluid.

The result, however, of Poisson's investigation is practically equivalent to that already obtained by Laplace. In both theories the equation of the liquid surface is the same, involving a constant H , which can be determined only by experiment. The only difference is in the manner in which this quantity H depends on the law of the molecular forces and the law of density near the surface of the fluid, and as these laws are unknown to us we cannot obtain any test to discriminate between the two theories.

We have now described the principal forms of the theory of capillary action during its earlier development. In more recent times the method of Gauss has been modified so as to take account of the variation of density near the surface, and its language has been translated in terms of the modern doctrine of the conservation of energy.

M. Plateau, who has himself made the most elaborate study of the phenomena of surface-tension, has adopted the following method of getting rid of the effects of gravity: He forms a mixture of alcohol and water of the same density as olive oil. He then introduces a quantity of oil into the mixture. It assumes the form of a sphere under the action of surface-tension alone. He then, by means of rings of iron-wire, disks, and other contrivances, alters the form of certain parts of the surface of the oil. The free portions of the surface then assume new forms depending on the equilibrium of surface-tension. In this way he has produced a great many of the forms of equilibrium of a liquid under the

action of surface-tension alone, and compared them with the results of mathematical investigation. He has also greatly facilitated the study of liquid films by showing how to form a liquid, the films of which will last for twelve or even for twenty-four hours. The debt which science owes to M. Plateau is not diminished by the fact that, while investigating these beautiful phenomena, he has never himself seen them. He lost his sight long ago in the pursuit of science, and has ever since been obliged to depend on the eyes and the hands of others.

M. Van der Mensbrugghe has also devised a great number of beautiful illustrations of the phenomena of surface-tension, and has shown their connection with the experiments of Mr. Tomlinson on the figures formed by oils dropped on the clean surface of water.

M. Dupré in his 5th, 6th, and 7th Memoirs on the Mechanical Theory of Heat (*Ann. de Chimie et de Physique*, 1866 to 1868) has done much towards applying the principles of thermodynamics to capillary phenomena, and the experiments of his son are exceedingly ingenious and well devised, tracing the influence of surface-tension in a great number of very different circumstances, and deducing from independent methods the numerical value of the surface-tension. The experimental evidence which M. Dupré has obtained bearing on the molecular structure of liquids must be very valuable, even if many of our present opinions on this subject should turn out to be erroneous.

M. Quincke has made a most elaborate series of experiments on the tension of the surfaces separating one liquid from another and from air.

M. Lüdgtge has experimented on liquid films, and has shown how a film of a liquid of high surface-tension is replaced by a film of lower surface-tension. He has also experimented on the effects of the thickness of the film, and has come to the conclusion that the thinner a film is, the greater is its tension. This result, however, has been tested by M. Van der Mensbrugghe, who finds that the tension is the same for the same liquid whatever be the thickness, as long as the film does not burst. The phenomena of very thin liquid films deserve the most careful study, for it is in this way that we are most likely to obtain evidence by which we may test the theories of the molecular structure of liquids.

Sir W. Thomson has investigated the effect of the curvature of the surface of a liquid on the thermal equilibrium between the liquid and the vapor in contact with it. He has also calculated the effect of surface-tension on the propagation of waves on the surface of a liquid, and has determined the minimum velocity of a wave, and the velocity of the wind when it is just sufficient to disturb the surface of still water.

CAPIS, or CAPIZ, a town of the Philippine Islands, in a province of the same name, on the north coast of Panay, at the mouth of the rivers Panay, Panitan, and Ivisan, which are subject to inundations during the rainy season. It is the seat of a Spanish alcalde, and is defended by a small fort. Population, 11,470.

CAPISTRANO, GIOVANNI DI (1386-1456), was born at the little town of Capistrano in the Abruzzi. He was educated for the profession of law, and till about his thirtieth year was engaged in practice as an advocate. He then entered the Franciscan order, and became one of its most rigid and devoted adherents. At the same time he manifested very remarkable powers as a popular preacher, and was consequently employed on various missions by the popes. In 1450 he was sent by Nicholas V. to Germany to preach against the Hussite heresy, and at the same time to excite the Germans to a crusade against the Turks who, under their great leader, Mahomet II., were threatening to overrun Europe.

Capistrano did much to repress the Hussite movement, and though he failed to excite a crusade against the Turks, his religious enthusiasm sustained the inhabitants of Belgrade when that town was besieged by the Turkish forces in 1456. He accompanied them with the cross in his hand in their successful sortie, a few months before his death. He was canonized in 1690.

CAPITAL, in social discussions sometimes treated as antithetical to Labor, is in reality the accumulated savings of labor and of the profits accruing from the savings of labor. It is that portion of the annual produce reserved from consumption to supply future wants, to extend the sphere of production, to improve industrial instruments and processes, to carry out works of public utility, and, in short, to secure and enlarge the various means of progress necessary to an increasing community. It is the increment of wealth or means of subsistence analogous to the increment of population and of the wants of civilized man. Hence Mr. Mill and other economists, when seeking a graphic expression of the service of capital, have called it "abstinence." The laborer serves by giving physical and mental effort in order to supply his means of consumption. The capitalist, or laborer-capitalist, serves by abstaining from consumption, by denying himself the present enjoyment of more or less of his means of consumption, in the prospect of a future profit. This quality, apparent enough in the beginnings of capital, applies equally to all its forms and stages; because whether a capitalist stocks his warehouse with goods and produce, improves land, lends on mortgage or other security, builds a factory, opens a mine, or orders the construction of machines or ships, there is the element of self-deprivation for the present, with the risk of ultimate loss of what is his own, and what, instead of saving and embodying in some productive form, he might choose to consume. On this ground rests the justification of the claims of capital to its industrial rewards, whether in the form of rent, interest, or profits of trade and investment.

To any advance in the arts of industry or the comforts of life, a rate of production exceeding the rate of consumption, with consequent accumulation of resources, or in other words, the formation of capital, is indispensable. The primitive cultivators of the soil, whether those of ancient times or the modern pioneers who have formed settlements in the forests of the New World, soon discovered that their labor would be rendered more effective by implements and auxiliary powers of various kinds, and that until the produce from existing means of cultivation exceeded what was necessary for their subsistence, there could be neither labor on their part to produce such implements and auxiliaries, nor means to purchase them. Every branch of industry has thus had a demand for capital within its own circles from the earliest times. The flint arrow-heads, the stone and bronze utensils of fossiliferous origin, and the rude implements of agriculture, war, and navigation, of which we read in Homer, where the forerunners of that rich and wonderful display of tools, machines, engines, furnaces, and countless ingenious and costly appliances, which represent so large a portion of the capital of civilized countries, and without the pre-existing capital could not have been developed. Nor in the cultivation of land, or the production simply of food, is the need of implements, and of other auxiliary power, whether animal or mechanical, the only need immediately experienced. The demands on the surplus of produce over consumption are various and incessant. Near the space of reclaimed ground, from which the cultivator derives but a bare livelihood, are some marshy acres that, if drained and enclosed, would add considerably in two or three years to the produce; the forest and other natural obstructions might also be driven

farther back with the result, in a few more years, of profit; fences are necessary to allow of pasture and field crops, roads have to be made and farm buildings to be erected; as the work proceeds more artificial investments follow, and by these successive outlays of past savings in improvements, renewed and enhanced from generation to generation, the land, of little value in its natural state either to the owner and cultivator or the community, is at length brought into a highly productive condition. The history of capital in the soil is substantially the history of capital in all other spheres. No progress can be made in any sphere, small or large, without reserved funds possessed by few or more persons, in small or large amounts, and the progress in all cases is adventured under self-deprivation in the meanwhile of acquired value, and more or less risk as to the final result.

Capital is necessarily to be distinguished from money, with which in ordinary nomenclature it is almost identical. It is impossible to draw any line where capital may not operate actively without the intervention of money. A farmer, manufacturer, or artisan, who has saved from his consumption and expenses of the past year an amount of product-value, may in the following year either employ more labor to direct production or divert a portion of the labor hitherto employed to an improvement of his process, which in either case would be an investment of capital. Money, strictly speaking, is the gold and silver coins in circulation and banking reserve, and its sum in the United Kingdom may amount to over 100 millions sterling. But when the bank deposits of the kingdom are taken into account, they are found to be five or six hundred millions sterling, all active as money, and forming what is called the "floating capital" of the country. The explanation is that the farmer, manufacturer, and artisan already supposed, having a surplus produce to dispose of, sell it at what they deem the proper time for their advantage and put the proceeds in bank; or the domestic servant or laboring man having a surplus from his wages, or the investor or speculator in stocks and shares having realized a profit, or the owner of a thousand acres, or the millionaire embarrassed with the returns of a capital so large that he can only add to it year after year, do the same thing — the money employed in these multiplied transactions being merely the vehicle of their notation in money-value, and after accomplishing one series of transactions being available for another series following. The deposits thus made to the banks may be recalled soon or late, in whole or in part, or may go on increasing under the same names for a generation; but, in any case, they are the realized money-values of commodities, wages, rents, interest, and profits, of which the owners had no present need, and which they placed at the service of the public in this social form at some rate of interest until such time as they might choose or need to recall them. This is capital in its most vitalized form, because it is offered through the banks to all who want capital and can give the requisite securities of document or character for its repayment. In proportion as this fund increases a country may be safely deemed richer in resource for the extended employment of labor in all profitable branches of industry, and for coping with every exigency in its industrial and commercial condition. It is a necessary element of all great enterprises, such as railways, telegraphs, lines of ocean steamers, and the like, as well as of operations in foreign commerce where there is a long train of outlays in materials, wages, and charges before there can be any return. Still the idea of capital cannot be confined to money and bank deposits of money. The indefinite extent to which, in the practical conduct of trades and industries, the capital is insensibly increased out of the resources of the business itself, without loans or

contribution of new capital shares, and the facility with which property and commodities command the energy of free and active capital, forbid any narrow definition. The capital of a country can scarce be said to be less than the whole sum of its investments in a productive form, and possessing a recognized productive value.

CAPITAL PUNISHMENT in criminal jurisprudence is the punishment of death (Lat. *capitis pœna*). In this country each state has jurisdiction over its own territory, and the laws punishing crime differ in many respects. In most of the states, murder is by statute divided into different degrees. Death by hanging is the usual penalty for murder of the first degree, but in a few states imprisonment for life is substituted for capital punishment. In some states, as Michigan, Wisconsin, Rhode Island, and Maine, capital punishment has been done away with. In the states of New York and Iowa, on the other hand, the legislatures, having abolished the death penalty, were compelled by the consequent increase of crime to restore it. Various methods of execution are in use, as hanging in England and most parts of the United States, beheading by sword or guillotine in Germany and France, garroting in Spain, and death by electricity in New York.

CAPITALS (*majuscula*), in contradistinction to small letters (*minuscula*), are larger and differently shaped letters employed in writing and printing to help the eye, to relieve the uniformity of the page, to increase the facility of keeping and finding the place, to mark the beginning of sentences, proper names, etc. Among the ancients, and during the early part of the middle ages, no distinction between capitals and small letters was known; writing was originally all capitals, and after the practice had been introduced of beginning books and chapters with great letters, often adorned or illuminated with much artistic ability, it was long before capitals were employed in such a way as could afford much real advantage to the reader. At the present day they are almost universally in use, even in the printing of Greek and Latin books.

CAPITANATA, or **FOGGIA**, a province of Southern Italy, formerly belonging to the kingdom of Naples. It has an area of 2,955 square miles, and is bounded on the north and east by the Adriatic sea, on the southeast by the province of Bari, on the south by Basilicata and Principato Ulteriore, on the west by Benevento and Molise. Population (1889), 346,000.

CAPITO, or **KOEPFLIN**, **WOLFGANG FABRICIUS** (1478-1541), a Reformed divine, was born of humble parentage at Hagenau in Alsace. In 1523 he settled at Strasburg, where he remained till his death. He took a prominent part in the earlier ecclesiastical transactions of the 16th century, was present at the second conference of Zurich and at the conference of Marburg, and along with Bucer was appointed to present to the emperor the confession of Augsburg. From his endeavors to conciliate the Lutheran and Zwinglian parties in regard to the sacraments, he seems to have incurred the suspicions of his own friends; while from his intimacy with several divines of the Socinian school he drew on himself the charge of Arianism.

CAPITOL, the great temple of Jupiter on the Tarpeian or Capitoline Hill at Rome. See **ROME**.

CAPITOLINUS, **JULIUS**, one of a number of historical writers who lived about the end of the 3d century. See **AUGUSTAN HISTORY**.

CAPITULARIES are certain laws enacted under the auspices of kings of the Frankish race. They are called *Capitularia*, a name of no classical authority, but derived from *capitulum*, the diminutive of *caput*; and they are so described from the circumstance of their being enacted or digested *capitulatim*, by heads or chap-

ters. The term is very frequently used in a general sense, but in other instances capitularies are distinguished from laws.

CAPITULATION (the *Pactum deditionis* of Grotius) is an agreement in time of war for the surrender to a hostile armed force of a particular body of troops, a town, or a territory. It is an ordinary incident of war, and therefore no previous instructions from the captor's Government are required before finally settling the conditions of capitulation. The most usual of such conditions are freedom of religion, and security of private property on the one hand, and a promise not to bear arms within a certain period on the other. Such agreements may be rashly concluded with an inferior officer, on whose authority the enemy are not in the actual position of the war entitled to place reliance.

Capitulation is also the name given to an arrangement by which a body of foreigners enjoy certain privileges within the state making the capitulation; e.g., the Swiss Guards at the Tuileries, or the consular jurisdictions in the Levant. It is also applied by French writers to the oath which on his election the emperor of the Romans used to make to the college of electors; this related chiefly to such matters as regalian rights, appeals from local jurisdictions, the rights of the Pope, &c.

CAPMANY, **ANTONIO DE MONTPALAN Y** (1743-1813), a Spanish historian and philosopher, was born at Barcelona.

CAPO D'ISTRIA, a fortified seaport town of Austria, in the government of Trieste and circle of Istria. It stands on a small island in the Gulf of Trieste, 8 miles south of that city, in 45° 32' 20" N. lat. and 13° 42' 29" E. long., and is connected with the mainland by a causeway half a mile in length. Capo d'Istria is usually identified with the town of Ægida, mentioned by Pliny, which appears by an inscription to have afterwards received the name of Justinopolis from Justin II. At a later period it formed a free commonwealth, which was subjugated by the Venetians in the 10th century, fell into the hands of the Genoese in 1380, and was recaptured by the Venetians in 1487. As capital of Istria it passed into Austrian possession in 1797.

CAPO D'ISTRIA, **JOHN, COUNT** (1780-1831), was born at Corfu, where his father was a physician, in 1780. At first he devoted himself to the study of medicine in the academies of Padua and Venice, but joined the Russian diplomatic service when at the treaty of Tilsit the Ionian Islands were ceded to the French. He held the office of secretary for foreign affairs under the Emperor Alexander, and was president of the Greek republic after the battle of Navarino. Having been suspected of treachery to the republican cause, he was assassinated when entering a church at Nauplia, October 9, 1831. See **GREECE**.

CAPPADOCIA, an extensive province of Asia Minor, that for a considerable period constituted an independent kingdom. It was originally a country of much greater extent; in the time of Herodotus, the Cappadocians occupied the whole region from the chain of Mount Taurus on the south to the shores of the Euxine.

Cappadocia, in this sense, was bounded on the south by the chain of Mount Taurus, on the east by the prolongation of that ridge and the Euphrates, on the north by Pontus, and on the west by Galatia and Lycaonia.

The eastern portion of the province is of a more varied and broken character, being traversed by the mountain-chain called by the Greeks Anti-Taurus, as well as by several subordinate ridges, some of them parallel with it, others extending eastwards from thence towards the Euphrates. Between these mountains and the southern chain of Taurus properly so called lies the

region called in ancient times Catonia, occupying an upland plain in a basin surrounded on all sides by mountains.

The River Pyramus (now called the Jihun) rises in the table-land of Cataonia, and forces its way through narrow and rocky defiles across the chain of Taurus to the plains of Cilicia. The Sarus, or Sihun, rises much farther north, in the Anti-Taurus, near the frontiers of Pontus, and flows through a deep and narrow valley between two parallel ridges of mountains, for a distance of more than 150 miles, till it in like manner forces its way through the main range of the Taurus, and emerges into the plains of Cilicia. The Halys, or Kizil Irmak, which has its sources within the confines of Pontus, traverses the northern part of Cappadocia throughout its whole extent, passing within about 20 miles of the capital city of Kaisariyeh. The other rivers of Cappadocia are of little importance.

Nothing is known of the history of Cappadocia before it became subject to the Persian empire. It was included in the third satrapy of that empire in the division established by Darius, but continued to be governed by satraps or rulers of its own, who apparently retained the title of kings. These derived their descent from a Persian named Anaphas, who was one of the seven conspirators that slew the false Smerdis. The first ruler who succeeded in establishing himself in a position of virtual independence was Ariarathes (hence called Ariarathes I.), who was a contemporary of Alexander the Great, and maintained himself on the throne of Cappadocia after the fall of the Persian monarchy.

After the death of Alexander, Perdiccas, marching into Cappadocia with a powerful and well-disciplined army, succeeded in taking Ariarathes prisoner, and crucified him and all those of the royal blood who fell into his hands. His son Ariarathes II., however, having escaped the general slaughter, fled into Armenia, where he lay concealed till the civil dissensions which arose among the Macedonians after the death of Eumenes (to whom Perdiccas had surrendered the kingdom) gave him a favorable opportunity of recovering the throne. Having defeated Amyntas in a pitched battle, he compelled the Macedonians to abandon all the strongholds, and after a long and undisturbed reign, left his kingdom to his son Ariamnes II., under whose peaceful administration, as well as that of his successor Ariarathes III., Cappadocia made great progress.

He was succeeded by Ariarathes IV., who joined Antiochus the Great against the Romans, and after his defeat was obliged to atone for taking up arms against the people of Rome by paying a fine of two hundred talents. He afterwards assisted the republic with men and money against Perseus king of Macedon, and was honored by the senate with the title of the friend and ally of the Roman people. He left the kingdom to his son Mithridates, who took the name of Ariarathes V.

During the reign of this prince, surnamed *Philopator*, the Cappadocians remained in close alliance with Rome. Notwithstanding this, he was for a time expelled from his kingdom by Orophernes, who had been set up against him by Demetrius Soter, king of Syria, as a rival claimant to the throne of Cappadocia; but Ariarathes succeeded in expelling Orophernes, and afterwards united his arms with those of Alexander Balas against Demetrius, who was defeated and killed in battle. Some years afterwards Ariarathes, having espoused the cause of the Romans in their contest with Aristonicus, a claimant of the throne of Pergamus, was slain in the same battle in which Crassus, pro-consul of Asia, was taken, and the Roman army cut to pieces, (130 B.C.) He left six sons by his wife Laodice, on whom the Romans bestowed Lycaonia and Cilicia. But

Laodice, fearing lest her children when they came of age should take the government out of her hands, poisoned five of them,—the youngest only having escaped her cruelty by being conveyed out of the kingdom. She was soon, however, put to death by her subjects, who rose in rebellion against her tyrannical government.

Laodice was succeeded by Ariarathes VI., who soon after his accession married Laodice, daughter of Mithridates the Great, wishing to gain the alliance of that powerful prince in his contest with Nicomedes king of Bithynia, who laid claim to part of his kingdom. Mithridates, however, instead of assisting, procured the death of Ariarathes by poison, and under pretence of maintaining the rights of the Cappadocians against Nicomedes, proclaimed himself regent till the children of Ariarathes should be competent to govern the kingdom. The Cappadocians at first acquiesced; but finding him unwilling to resign the regency in favor of the lawful king, they rose in arms, expelled the foreign garrisons, and placed Ariarathes VII., eldest son of the late king, on the throne.

The new prince found himself immediately engaged in a war with Nicomedes; but, being assisted by Mithridates, he not only drove him out of Cappadocia, but stripped him of a great part of his hereditary dominions. On the conclusion of the peace, the refusal of Ariarathes to recall Gordius, the murderer of his father, led to a war with Mithridates. When the two armies met on the frontiers of Cappadocia, Mithridates invited Ariarathes to a conference, and openly stabbed him with a dagger which he had concealed in his dress. The terror-stricken Cappadocians immediately dispersed, and submitted to the yoke of Mithridates; but, unable to endure the tyranny of his prefects, they quickly rose in rebellion, and recalling the exiled brother of the late king they placed him on the throne. He had scarcely ascended the throne when Mithridates invaded the kingdom at the head of a numerous army, defeated the army of the Cappadocians with great slaughter, and compelled Ariarathes VIII. to abandon the kingdom. The unhappy prince soon after died of grief, and Mithridates bestowed the kingdom on his own son, a youth only eight years old, giving him also the name of Ariarathes. But Nicomedes Philopator, king of Bithynia, dreading the increase of power in a rival already so formidable, claimed the throne for a youth who pretended to be the third son of Ariarathes, and whom he sent with Laodice to Rome to advocate his cause. Having received the declaration of Laodice that the petitioner was one of three sons which she had borne to Ariarathes, and whom she had kept concealed lest he should share the fate of his brothers, the senate assured him that they would reinstate him in his kingdom. Mithridates, receiving notice of these transactions, despatched Gordius to Rome to advocate his cause, and to persuade the senate that the youth to whom he had resigned the kingdom of Cappadocia was the lawful son of the late king, and grandson to Ariarathes, who had lost his life in service of the Romans against Aristonicus. On receiving the embassy, the senate inquired more narrowly into the matter, discovered the whole plot, and ordered Mithridates to resign Cappadocia. The Cappadocians enjoyed their freedom for a short time, but soon sent ambassadors to Rome, requesting the senate to appoint a king. Leave was given them to elect a king of their own nation; and as the old royal family was now extinct, they chose Ariobarzanes, who received the sanction of the senate, and continued steadily attached to the Roman interest, (93 B.C.)

Ariobarzanes had scarcely taken possession of his kingdom when he was driven out by Tigranes, king of

Armenia, who resigned Cappadocia to the son of Mithridates, in terms of an alliance previously concluded between them. Ariobarzanes fled to Rome, and by the assistance of Sulla, who routed Gordius, the general of Mithridates, he was quickly reinstated in his kingdom. On the return of Sulla, however, Ariobarzanes was again driven out by Ariarathes, the son of Mithridates, whom Tigranes had set up as king. By the intervention of Sulla, Ariobarzanes was again placed on the throne; and immediately after Sulla's death he was a third time forced to abandon his kingdom, when Pompey, after defeating Mithridates near Mount Stella, restored the unfortunate monarch, and rewarded him for his services during the war with the provinces of Sophene, Gordyene, and a great part of Cilicia. Wearied with such a succession of disasters, soon after his restoration he resigned the crown to his son Ariobarzanes (63 B.C.), and spent the rest of his life in retirement.

On the death of Archelaus, (17 A.D.) the kingdom of Cappadocia was reduced to a Roman province, and governed by men of the equestrian order. It continued under the Roman empire to enjoy a high state of prosperity, and its capital, Cæsarea, became a great and flourishing city. But in the reign of Valerian, it was overrun by the Persian king Sapor, who took Cæsarea after a long siege, and put most of the inhabitants to the sword. Cappadocia, however, continued to form part of the Byzantine empire, till it was conquered by the Seljukian Turks in 1074. It has ever since remained incorporated with the Turkish empire.

During the Roman period Cappadocia assumes rather a prominent part in ecclesiastical history. Its capital, Cæsarea, was the birthplace of St. Basil, who long occupied its episcopal see, while that of Nyssa was held by his brother Gregory; and the small town of Nazianzus, in the south-west of the province, was at once the birthplace and the residence of the more celebrated Gregory, commonly known from thence as St. Gregory Nazianzen.

CAPPEL, the name of a family of distinguished theologians, scholars, and jurisconsults, of whom the following are the most important. Guillaume Cappel, in 1491, as rector of the university of Paris, had the boldness to forbid the payment of the tithe demanded by Pope Innocent VIII. His son Jacques, jurisconsult and councillor of state under Francis I., is famous for the speech which he delivered in 1537 before the king and nobility of France against Charles V. and the counts of Flanders, Artois, and Charolais. His son, Louis Cappel, sieur de Moniambert (1534-1586), who began life as professor of Greek at Bordeaux, and ended his days as professor of theology at Sedan, is remarkable for his devotion to the cause of Protestantism, for the sake of which he risked his life on more than one occasion. It was he who, in 1560, presented to Charles IX. the Confession of Faith which had been drawn up by the Parisian Protestants. Another son, Jacques Cappel (1570-1624), was a distinguished jurisconsult. He was the father of Jacques Cappel, author of a number of works of considerable celebrity on theology, history, philology, and antiquities.

CAPPERONIER, CLAUDE (1671-1744), a classical scholar, was the son of a tanner at Montdidier. He studied at Amiens and Paris, and took orders in the Church of Rome, but devoted himself almost entirely to classical studies. He declined a professorship in the university of Basel, and was afterwards appointed to the Greek chair in the Collège de France. He published an edition of Quintilian, and left behind him at his death an edition of the ancient Latin Rhetoricians, which was published in 1756. His nephew, Jean Capperonier, was also a famous linguist.

CAPRERA, or CABRERA, a small island of Italy, in the Mediterranean, two miles off the north-east coast of Sardinia. It forms one of the Buccinarian group, and belongs to the province of Sassari. The most of its surface of 6700 acres is rocky and unfertile; and till the present century it was only occasionally visited. In 1854 Garibaldi acquired possession of a part of the island, and built himself a house, which he made his principal place of residence until his death. See Vecchj, *Garibaldi at Caprera*, 1862.

CAPRI, the ancient *Caprea*, a small island of Italy on the south side of the Bay of Naples, separated by a space of $3\frac{1}{2}$ miles from the promontory of Sorrento. It is a mass of limestone rock, with an area of about 20 square miles, rising into two distinct peaks or plateaus, with a little valley of great fertility between. The coast consists for the most part of precipitous cliffs, and there are only two landing-places in the whole circuit. The scenery throughout the island is of unusual beauty, and some of the sea-caves are unrivalled for the splendid color reflected on the rock. The two most famous are called respectively the Blue and the Green Grotto; the former, though it has only become a popular resort in the present century, seems to have been known in the 17th. The inhabitants still retain distinct traces of the Greek type of countenance and figure. They are industrious, religious, and simple, and in general, poor. Besides the cultivation of the narrow surface that can be reclaimed from the rock, they chiefly depend on the capture of the quails which visit the island in May and December; and about 200 of the young men take part annually in the coral fishery on the coast of Africa. The chief towns are Capri in the east, with 2332 inhabitants, and a beautiful cathedral and a seminary; and Anacapri in the west, situated on the summit of Monte Solara, and accessible by a stair of 552 steps cut in the rock.

CAPRICORNUS, the *Goat*, the tenth sign of the Zodiac.

CAPRIDÆ, a term sometimes used to denote the Sheep and Goat family (*Ovis* and *Capra*) as distinguished on the one hand from Cattle (*Bovina*), and on the other from all sorts of Antelopes (*Antelopina*). The term *Ovina* is more frequent, and has the same content.

CAPRIFICATION, a curious ancient custom of hanging the fig-branches of the so-called goat-fig or *Caprificus* on the fig-trees which produce the edible figs.

CAPRIFOLIACEÆ, a natural order of corollifloral dicotyledous, nearly allied to *Rubiaceæ* (sub-order *Cinchonaceæ*), from which they are mainly distinguished by the absence of stipules, and containing about 200 species of shrubs and herbs, natives of the north temperate zone. Many are cultivated—*e. g.*, the Honeysuckles (*Lonicera*), the Snowberry (*Symphoricarpos racemosus*), the Guelder Rose or Snowball, etc.

CAPRIMULGIDÆ, or **NIGHT-JARS**, a family of birds, nearly allied to the Swallows, but differing from them in the greater width of gape, and in having bristles at the base of the bill. They are twilight insectivorous birds, with the exception of the Oil-bird *Steatornis*. They have a very short triangular beak and broad, low head, very long wings, and short legs. The family includes the Whip-poor-will and Night-hawk.

CAPROIC, CAPRYLIC, and CAPRIC ACIDS are represented by the formulæ $\text{HC}_7\text{H}_{11}\text{O}_2$, $\text{HC}_8\text{H}_{15}\text{O}_2$, and $\text{HC}_{10}\text{H}_{19}\text{O}_2$, and are members of the acetic or fatty-acid series. They derive their name from *capra*, "a goat," in consequence of their more or less resembling in smell the odor of that animal. They may all be obtained from butter by pressing out the portion which remains liquid at 60° (15.5° C.), saponifying this oil, and distilling the soap which is thus formed with

sulphuric acid. The liquid which passes over contains, along with butyric acid, these three acids, which, by being converted into baryta salts, are separable from one another.

CAPSICUM. See CAYENNE PEPPER.

CAPSTAN, an appliance used on board ship and elsewhere for heaving up the anchor or any heavy weight.

CAPSULE, in Botany, a dry fruit, formed of several united carpels (syncarpous). When the placentation is parietal or free-central, the capsule is of course one celled; when axile, it is two or more celled. The word is also applied to gum envelopes for medicines, to metallic covers for bottles, and to little saucers used in chemistry.

CAPTAIN, MILITARY, originally a *head* or *leader*, irrespective of the number of men under him, but now a company or troop commander.

CAPTAIN, NAVAL, is the general designation for the officer in command of a ship of the navy, although some vessels of war are commanded by officers lower in rank than captain. Captains rise to the command of larger ships, with increase of pay, according to length of service. A captain in the United States navy ranks with a colonel in the army.

CAPUA, a large and important city of ancient Italy, capital of Campania, was situated in the midst of a very fertile and valuable territory, two miles from the bank of the Volturnus, and about half that distance from the mountain Tifata. It is now generally agreed that Capua was one of the twelve cities which the Tuscans were said to have founded in the south of Italy at the beginning of the ninth century B. C. The city soon rose in importance, and its inhabitants became renowned throughout the whole peninsula for their wealth, and the luxurious magnificence of their lives. In course of time, as was natural, they degenerated so far that, from having been originally a brave and warlike people, they could no longer resist the encroachments of the Samnites, who in 424 B. C. made themselves masters of the city, and put the inhabitants to the sword. The material prosperity of the city remained undiminished under the rule of the Samnites, who in less than a century became as effeminate and degenerate as the Capuans had been. When they in turn were attacked by the mountaineers, they were compelled to apply to Rome for assistance, which was immediately granted. At the close of the Latin war, in which the Capuans had assisted the allies, they were deprived of the *Campanus Ager*, the most valuable district in Italy, but were admitted to take rank as citizens of Rome. They still continued, however, to select their own rulers. When the second Punic war broke out, the Capuans, elated with the prospect of retrieving their high position, opened their gates to Hannibal, who spent an entire winter with his army in the city. To the enervating contagion of Capuan effeminacy historians have always attributed the want of success which subsequently attended the Carthaginian commander in his Italian campaigns. When the Romans at length made themselves masters of the city, in the seventh year of the war, they took a terrible revenge, and only forbore to raze the city to the ground in consideration of the great natural advantages of its site. For its fidelity in the social war, the Romans restored to Capua all its municipal privileges, and the city recovered all its commercial, though it never regained its political, importance. Under the emperors it continued to prosper commercially, and it seems to have been as rich and populous at the downfall of the Western empire as during the time of its political independence. Its wealth marked it out as a special object of attack to the Vandals, who took and nearly destroyed it under

Genseric 456 A. D. What was left undone by the Vandals was completed by the Saracens, who burnt the city to the ground in 840. Casilinum is the modern Capua, the site of the ancient Capua being now occupied by Santa Maria, a thriving town of 16,000 inhabitants.

CAPUCHINS. The Capuchin friars are one branch of the great Franciscan order, and their rule is in all essentials the same as that of the other friars minor, or Minorites. It was in the first decade of the thirteenth century that St. Francis established his order; but it was not till 1523 that a bull of Clement VII. erected into a separate order the disciples of a certain minorite friar, who had conceived that he was inspired to reform the practices of his order in some respects. This man's name was Mathew da Bassi, a Franciscan of the March of Ancona. The legend of the order states that, having seen a representation of St. Francis wearing a square-cut pyramidal hood, he made a similar one for himself, sewed it on to his monastic habit and began to wear it. This was in 1525. This audacious innovation drew down on the author of it much blame, and some persecution on the part of his superiors; but as usual in similar cases, that did not prevent others from following his example. Specially two brothers, Ludovico and Raffaele of Fossombrone, the first a priest and the second a lay brother of the Franciscan order, joined themselves to Mathew, and underwent punishment from their superiors for so doing. They, however, obtained the countenance and patronage of the Duchess Cibo, a connection of the then reigning Pope Clement VII. (Giulio de' Medici), and the wife of Giorgio Varano, duke of Camerino. That lady gave her protégés a letter of recommendation to the Pope, armed with which they went to Rome, and, despite the fact that they were disobedient to their superiors and therefore had broken their monastic vows, obtained from the Pope the bull known as *Religionis Zelus*, by which they were permitted to impart their hooded habit to any disciples who might be willing to join them, to live as hermits in wild and desolate places, to go barefoot, to wear beards, and to call themselves "Hermit Friars Minor."

CAPUCHIN MONKEY, or **CAI**, a name often given to *Cebus capuchinus*, and some other species of the genus *cebus*, South American monkeys, which have the head covered with short hair, so disposed as to resemble the cowl of a capuchin, the face being almost naked, or only covered with a little down. *Pithecia Chiropotes*, a South American monkey of a genus allied to *cebus*, is also sometimes called the capuchin of the Orinoco. *Cebus fatuellus* is known as the brown capuchin.

CAPULETS and **MONTAGUES**, the English spelling of the names of the Cappelletti and Montecchi, two noble families of Northern Italy, according to tradition, of Verona, chiefly memorable from their connection with the legend on which Shakespeare has founded his tragedy of *Roméo and Juliet*. They both belonged to the Ghibelline faction, as we see from a reference in Canto VI. of Dante's *Purgatorio*.

CAPYBARA (*Hydrochærus capybara*), the largest of existing Rodents, measuring about four feet in length and three in girth, and weighing usually over 100 pounds. It is also known as the water-hog from the resemblance which it bears when walking to a pig, although when sitting on its haunches it resumes the characteristic appearance of the Cavy family, to which it belongs.

CARABOBO, a State of Venezuela, between the Caribbean Sea and the State of Zamora. Area, 2,974 square miles; population (1886), 167,499. Capital, Valencia; chief port, Puerto Cabello.

CARACAL, THE (*Felis caracal*), belongs to a group of lynxes characterized by comparative slenderness of

body and length of tail and ears. It is somewhat larger than a fox, of a uniform reddish brown color above, and whitish beneath, with two white spots above each of the eyes, and with a long black tuft of hair at the tip of the ears, the latter according to Sir W. Jardine, being only present in spring, or at the commencement of the breeding season. Like the cheetah, it was formerly trained by Eastern princes to hunt the smaller quadrupeds, and such birds as the crane and pelican; but from its fierceness and extreme irritability which it displays in confinement, it does not seem well-fitted for domestication.

CARACALLA, MARCUS AURELIUS ANTONINUS (188-219 A.D.) a Roman emperor, son of the Emperor Septimus Severus, was born at Lyons in 188. His original name, Bassianus, has been entirely dropped in favor, either of the nickname Caracalla (taken from the long hooded tunic which he wore, and introduced into the army), or of the imperial title of Marcus Aurelius Antoninus, which he received at the time when his father declared himself the adopted son of M. Aurelius. Dion Cassius regularly calls him Tarantus, from his resemblance to a certain coarse and bloodthirsty gladiator. The heartless cruelty of his disposition was early displayed in an attempt to assassinate his father; and when, on his father's death, he mounted the throne (211) as colleague of his brother Geta, he did not shrink from murdering him in the presence of his mother, to seize the supreme power, nor from making himself secure by butchering 20,000 persons whom he suspected. It is said that he was however, unable to rid himself of remorse, and that it was the torment of conscience which drove him to spend the rest of his life in the maddest acts of destruction and bloodshed. He visited Gaul, Germany, France, Egypt, and various parts of Asia, plundering everywhere, and committing the most atrocious crimes. In Alexandria he took vengeance for the sarcasms of the people by a general massacre; and he laid Mesopotamia waste because Artabanus, the Parthian king, refused to give him his daughter in marriage. In 217 he was killed at the instigation of Macrinus, who succeeded him. See ROMAN HISTORY.

CARÁCAS, a large city of South America, capital of the United States of Venezuela, and of the federal district, is situated on the declivity of a mountain 2880 feet above the level of the sea, 16 miles south-south-east of La Guayra, its port on the Caribbean Sea; population 50,000. The city is finely situated, and has a temperate and healthy though variable climate. The chief public building is the cathedral, which is 250 feet in length by 75 in breadth, and is supported by twenty-four pillars, without beauty or proportion. It contains the tomb of Bolivar. The university of Carácas, which, with the House of Assembly, the National Library (of 10,000 volumes), and a church forms one block of the town, was originally a convent of Carmelite friars, and has faculties of divinity, chemistry, and medicine. The Municipal Hall, close to the Grand Plaza, is a plain building, one of the oldest in Carácas. There are several parish churches, three monasteries for friars, two nunneries, three hospitals (one of which is for lepers alone), and a theatre. The city is very inaccessible from the north, in which direction three rough mountain tracks unite it with La Guayra. A railroad is projected to unite Carácas and its port. A railway to the eastward from the city was partly constructed at one time, but was not completed. Carácas was founded by Diego Losada in 1567.

CARACCI, LODOVICO, AGOSTINO, and ANNIBALE, three celebrated Italian painters, were born at Bologna in 1555, 1558, and 1560 respectively. Lodovico, the eldest son of a butcher, was cousin to the two younger, Agostino, and Annibale, sons of a tailor, and had

nearly finished his professional studies before the others had begun their education. From being a reputed dunce while studying under Tintoretto in Venice, he gradually rose, by an attentive observation of nature and a careful examination of the works of the great masters preserved at Bologna, Venice, Florence, and Parma, to measure himself with the teachers of his day, and ultimately projected the opening of a rival school in his native place. Finding himself unable to accomplish his design without assistance, he sent for his two cousins, and induced them to abandon their handicrafts (Agostino being a goldsmith, and Annibale a tailor) for the profession of painting. Agostino he first placed under the care of Fontana, retaining Annibale in his own studio; but he afterwards sent both to Venice and Parma, to copy the works of Titian, Tintoretto, and Correggio, on which his own taste had been formed. On their return, the three relatives, assisted by an eminent anatomist, Anthony de la Tour, opened, in 1589, an academy of painting under the name of the Incamminati (or, as we might paraphrase it, the Right Road), provided with numerous casts, books, and bassi-rilievi, which Lodovico had collected in his travels. From the affability and kindness of the Caracci, and their zeal for the scientific education of the students, their academy rose rapidly in popular estimation, and soon every other school of art in Bologna was deserted and closed. They continued together, till at the invitation of Cardinal Farnese, Annibale and Agostino went to Rome in 1600 to paint the gallery of the Cardinal's palace. The superior praises awarded to Agostino inflamed the jealousy of Annibale, already kindled by the brilliant reception given by the pupils of the Incamminati to Agostino's still highly celebrated picture of the Communion of St. Jerome, and the latter was dismissed to Parma to paint the great saloon of the Casino. Here he died in 1601, when on the eve of finishing his renowned painting of *Celestial, Terrestrial, Venal Love*. Annibale continued to work alone at the Farnese gallery till the designs were completed; but, disappointed at the miserable remuneration offered by the cardinal, he retired to Naples, where an unsuccessful contest for a great work in the church of the Jesuits threw him into a fever, of which he died in 1609. Lodovico always remained at his academy in Bologna (excepting for a short visit to his cousin at Rome), though invited to execute paintings in all parts of the country. He died in 1619, and was interred in the church of St. Mary Magdalene. The works of Lodovico are numerous in the chapels of Bologna. The most famous are — The Madonna standing on the moon, with St. Francis and St. Jerome beside her, attended by a retinue of angels; *John the Baptist*, *St. Jerome*, *St. Benedict*, and *St. Cecilia*; and the *Limbo of the Fathers*. He was by far the most amiable of the three cousins, rising superior to all feelings of jealousy towards his rivals; and though he received large sums for his productions, yet, from his almost unparalleled liberality to the students of the academy, he died poor. With skill in painting Agostino combined the greatest proficiency in engraving (which he had studied under Cornelius de Cort) and high accomplishments as a scholar. He died not untroubled by remorse for the indecencies which, in accordance with the corruption of the time, he had introduced into some of his engravings. The works of Annibale are more diversified in style than those of the others, and comprise specimens of painting after the manner of Correggio, Titian, Paolo Veronese, Raphael, and Michael Angelo. The most distinguished are *The Dead Christ in the Lap of the Madonna*; *The Infant and St. John*; *St. Catherine*; *St. Roch Distributing Alms* (now in the Dresden Gallery); and *The Savior Weiled Over by the*

Maries, at present in possession of the earl of Carlisle. He frequently gave importance to the landscape in his compositions. The reputation of Annibale is tarnished by his jealousy and vindictiveness towards his brother, and the licentiousness of his disposition, which contributed to bring him to a comparatively early grave.

CARACTACUS, a chief of the Silures in ancient Britian. See BRITANNIA.

CARAMAN, KARAMAN, a town of Asiatic Turkey, in the vilayet of Konia in Asia Minor, sixty-one miles southeast of the city of Konia (*Iconium*) on the border of an extensive plain at the foot of Mount Taurus.

CARAMANIA, or KARAMANIA, is a name that has been frequently given by modern geographers to the south coast of Asia Minor, including the whole of the districts between Mount Taurus, and the Mediterranean, known in ancient times as Lycia, Pamphylia, and Cilicia.

CARAMEL, the highly-flavored, dark-brown substance produced by the application of heat to sugar. It is formed during the roasting of all materials containing sugar, such as coffee, chicory, and malt, and is one cause of the dark color of porter and infusions of coffee. It is employed in the coloring of whisky, wines, vinegar, etc.

CARAPACE, a term applied to the shield on the back of such crustaceans as crab and lobster, of the unique king crab or *limulus*, or of chelonians like tortoise and turtle. In the former cases it is a horny and limy modification of the outer portion of the skin; in the last it is mainly due to backbone and ribs.

CARAT. Goldsmiths and assayers divide the troy pound, ounce, or any other weight into twenty-four parts, and call each a carat, as a means of stating the proportion of pure gold contained in any alloy of gold with other metals. Thus, the gold of English coinage and of wedding rings, which contains $\frac{22}{24}$ of pure gold, is called "22-carats fine," or "22-carat gold." This, however, is not the case with the jewelry carat used for weighing diamonds and other precious stones, pearls, etc., which has a fixed weight equal to $3\frac{1}{6}$ troy grains, and is divided into quarters, or "carat grains," eighths, sixteenths, thirty-seconds, and sixty-fourths.

CARAVACA, a town of Spain, in the province of Murcia, near a stream of the same name, which is tributary to the Segura. Population, 6,840.

CARAVAGGIO, MICHELANGELO AMERIGHI (or MERIGI) DA (1569–1609), a celebrated painter, born in the village of Caravaggio, in Lombardy, from which he received his name. He was originally a mason's laborer, but his powerful genius directed him to painting, at which he worked with unmitigable energy and amazing force. His best pictures are the *Entombment of Christ*, now in the Vatican; *St. Sebastian*, in the Roman Capitol; a magnificent whole-length portrait of a grand-master of the Knights of Malta, *Alof de Vignacourt and His Page*, in the Louvre; and *The Supper at Emmaus*, in the Borghese Palace.

CARAVAGGIO, POLIDORO CALDARA DA (1495–1543), a celebrated painter of frieze and other decorations in the Vatican, whose merits were such that, while a mere mortar-carrier to the artists engaged in that work, he attracted the admiration of Raphael, then employed on his great pictures in the Loggia of the palace. Polidoro's works, as well as those of his master, Maturino of Florence, have mostly perished, but are well known by the fine etchings of P. S. Bartoli, Alberti, etc. On the sack of Rome by the army of the Constable Bourbon in 1527, Polidoro fled to Naples. Thence he went to Messina, where he was much employed, and gained a considerable fortune, with which he was about to return to the mainland of Italy when he was robbed and murdered by an assistant, Tonno

Calabrese, in 1543. Two of his principal paintings are a *Crucifixion*, painted in Messina, and *Christ Bearing the Cross* in the Naples gallery.

CARAVAN, or, to write it more correctly, KARAWAN, is a Persian word, adopted into the later Arabic vocabulary, but rarely employed in speech and never in writing within the limits of Arabia proper, where other designations of strictly Arabic origin, such as "Rikb" (assembled riders) or "Kafileh" (wayfaring band) are in ordinary use.

In common acceptance, then, throughout Syria, Mesopotamia, and Asiatic Turkey generally, besides Persia, a caravan denotes a body of peaceable citizens, merchants, salesmen, and the like, traveling together on business for some considerable distance. The principal reasons which in the Asiatic region induce people of this class thus to unite for their journeys, and that in as large numbers as practicable, are, firstly, the greater security thus insured, or at least expected, against robbers, and in particular against marauding parties of Bedouins, Kurds, Tartars, and the like, whose grazing-grounds the proposed route may traverse; and, secondly, mutual assistance in the matter of provisions, water, and so forth. Bad government, or not rarely the absence of any government whatever, necessitates the first precaution; want of inns, baiting-places, and perhaps of habitations altogether, the second.

In these companies camels are most generally employed for the transport of heavy goods, especially where the track, like that between Damascus and Baghdad, for example, lies across level, sandy, and arid districts. The camels are harnessed in strings of fifty and more at a time, a hair-rope connecting the rear of one beast with the head of another; the leader is gaily decorated with party-colored trappings, tassels, and bells; an unladen ass precedes the file, for luck, say some, for guidance, say others—a not inappropriate allusion to human affairs in general. Where the route is rocky and steep, as that between Damascus and Aleppo, mules, or even asses, are used for burdens. The wealthier individuals of the party accompany it, where possible, on horseback. Every man carries arms, but these are in truth more for show than for use, and are commonly flung away in the presence of any serious robber-attack; of wild beasts there is little danger, none of formidable size or disposition existing in the Levantine East. Should greater peril than ordinary be anticipated from Bedouins or the like, the protection of a company of soldiers is habitually pre-engaged,—an expensive, and ordinarily a useless adjunct. A leader or director, called "Karawan-Bashi" (headman), or, out of compliment, "Karawan-Seraskier" (general), both terms of Perso-Turkish composition, but most often simply designated as "Reis" (chief), is before starting appointed by common consent. His duties are those of general manager, spokesman, arbitrator, and so forth; his remuneration indefinite. But in the matter of sales or purchases, either on the way or at destination, each member of the caravan manages as best he can for himself.

The number of camels or mules in a single caravan varies from forty or so up to six hundred and more; sometimes, as on the reopening of a long-closed route, it reaches a thousand. The movements of caravans are chiefly regulated by the seasons,—the summer and early autumn, when the heat is at its fiercest and water scarce, being, when possible, avoided, as also, though for opposite reasons, the brief but severe cold of a Levantine winter. Hence the ordinary caravan-seasons are the months of spring, early summer, and later autumn. Friday, in accordance with a recommendation made in the Koran itself, is the favorite day for setting out, the most auspicious hour being that immediately following

noonday prayer. The first day's march never does more than just clear the starting-point by a couple of miles, or thereabouts. Subsequently each day's route is divided into two stages,—the first being from 3 or 4 A. M. to about 10 in the forenoon; a halt follows, then travelling is resumed between 2 and 3 P. M. and continued till 6, or even 8 in the evening. Thus the time passed daily on the road averages from ten to twelve hours, and as the ordinary pace of a laden camel does not exceed 2 miles an hour, that of a mule being $2\frac{3}{4}$, it follows that a distance varying from 23 to 28 miles is gone over every marching day. But prolonged halts of two, three, four, and even more days are often interpolated, as business, fatigue, or fear of danger may suggest.

CARAVANSERAI, a public building, for the shelter of caravans and of wayfarers generally. It is commonly constructed in the neighborhood, but not within the walls, of some town or village, and bears the form of a quadrangle, with a dead wall outside, only pierced below by a few narrow air-holes, but with small windows higher up. Within, a cloister-like arcade, surrounded by cellular store-rooms, forms the ground-floor; and a somewhat lighter arcade, giving access to little dwelling-rooms, runs round it above. Broad, open flights of stone steps connect the stories. The central court is open to the sky, and generally has in its centre a well with a fountain-basin beside it; but sometimes the well is outside the building. A spacious portal, high and wide enough to admit the passage of a loaded camel, forms the sole entrance, which is furnished with heavy iron-plated folding doors, and is further guarded within by massive iron chains, drawn across at night. Each side of the entry is also provided with stone seats, and the entry paved with flagstones. The court itself is most often paved also, and large enough to admit of three or four hundred crouching camels or tethered mules; the bales of merchandise are piled away under the lower arcade, or stored up in the cellars behind it; the upstairs apartments are for human lodging; but cooking is usually carried on in one or more corners of the quadrangle below. Should the caravanserai be a small one, the merchants and their goods alone find their place within, the beasts of burden being left outside. A porter, appointed by the municipal authority of the place, is always present, lodged just within the gate, and sometimes one or more assistants. These form a guard of the building and of the goods and persons in it, and have the right to maintain order and, within certain limits, decorum; but they have no further control over the temporary occupants of the place, which is always kept open from prayer-time at early dawn till late in the evening for all arrivals. A small gratuity is expected by, and is generally given by the guests to, the porter, but he has no legal claim for payment from travelers, his maintenance being provided for out of the funds of the institution. Neither food nor provender is supplied in a caravanserai, water and shelter only; the rest the caravan has to find for itself. Many caravanserais in Syria, Mesopotamia, and Anatolia are possessed of considerable architectural merit, the style of their construction being in general that known as Saracenic.

CARAVELLAS, a seaport town of Brazil, in the province of Espiritu Santo, on a river, and not far from a bay, to which it gives its name. It is the principal port of the neighboring country, and serves as the headquarters of the whale fishery of the Abrolhos Islands which lie off the coast. Population about 5,000.

CARAWAY, the fruit, or so-called seed, of *Carum carui*, an umbelliferous plant growing throughout the northern and central parts of Europe and Asia. The

plant has finely-cut leaves and compound umbels, and fruits laterally compressed and ovate—the mericarps being subcylindrical, slightly arched, and marked with five distinct pale ridges. Caraways evolve a pleasant aromatic odor when bruised, and they have an agreeable spicy taste. They yield from 3 to 6 per cent. of a volatile oil, which is a compound of carvol (a mobile liquid isomeric with the menthol of spearmint) and carvene.

CARBIDES, formerly termed *carburets*, are the compounds of carbon with the various metals.

CARBINE is a short rifle. In the United States army all cavalry soldiers carry the Springfield carbine.

CARBINEERS, or CARABINEERS, meant formerly light horsemen, used chiefly to watch and harass the enemy, defend narrow passes, and act as skirmishers.

CARBOLIC ACID, or PHENOL, an acid substance forming one of the numerous constituents of coal-tar, was first described by Runge in 1834. Its constitution was investigated by Laurent in 1841, who, regarding it as a hydrate oxide of the compound radical phenyl, termed it the hydrate of phenyl. Among other names it has received are phenic acid, phenyl alcohol, and creosote; but though the latter is popularly applied to an impure mixture of carbolic acid and the allied cresylic acid, it properly belongs to an altogether distinct substance. In addition to being an abundant constituent of coal-tar, carbolic acid is formed by the action of heat upon salicylic acid; it can be obtained by the dry distillation of gum-benzoin and other resinous substances; traces of it are found in the urine of the horse, the ox, and man; and to it castoreum owes its peculiar odor.

Commercial carbolic acid is prepared solely from coal-tar by a method of which the following is an outline. When coal-tar is distilled the most volatile products—benzol, toluol, cumol, &c., first come away, after which when the temperature rises from 150° C. to 200° C. crude carbolic acid distils over. This distillate is mixed with a strong solution of caustic potash, and the resulting carbolate of potash is in its turn treated with sulphuric acid, which decomposes the carbolate, liberating carbolic acid, which rises to the surface as an oily layer, and is removed by a syphon. The product is purified by washing and repeated rectification, and finally cooled down to 10° C., when it forms whitish acicular crystals, from which the unsolidified acid is drained away. Pure carbolic acid crystallizes in long colorless needles; it melts at 35° C., and boils about 187° C. It is soluble in all proportions in alcohol, ether, and strong acetic acid, but dissolves only sparingly in water. It does not redden litmus paper; it exerts a powerful corrosive action on the skin; its aqueous solution coagulates albumen; and it unites with animal substances, preserving them from decomposition, and removing the offensive odor from putrefying matter.

The extensive manufacture and employment of carbolic acid are, in a large degree, owing to the exertions of the late Professor Grace Calvert, who was the first to manufacture it in the crystalline form. The development of the aniline color industry also communicated an impetus to the manufacture of carbolic acid, as the one is, in a sense, a secondary product of the other. A great many useful applications have opened up for the employment of the acid in addition to its extensive medicinal and antiseptic uses (see ANTISEPTICS).

Carbolic acid is, however, most largely consumed in the preparation of several dyeing materials, which are second only in importance to the colors derived from aniline.

CARBON (symbol, C; atomic weight, 12) is one of the most important of the chemical elements. It occurs pure in the diamond, and nearly pure as graphite or

plumbago; it is a constituent of all animal and vegetable tissues and of coal; and it also enters into the composition of many minerals, such as chalk and dolomite.

Carbon is a solid substance, destitute of taste and odor; but it occurs in several modifications which exhibit very diverse physical properties. Thus, it is met with in the form of the diamond in transparent crystals belonging to the regular or cubical system, which conduct electricity but slowly; and in the form of graphite in opaque crystals belonging to the hexagonal system, which conduct electricity nearly as well as the metals. The diamond is the hardest substance known, and has a relatively high specific gravity, but graphite is comparatively soft, producing a black shining streak when rubbed upon paper, and has a much lower specific gravity. In addition to these two crystalline modifications of carbon there are a number of varieties of non-crystalline or amorphous carbon, which, however, exhibit the greatest differences in physical properties.

By heating to the high temperature afforded by a powerful galvanic battery, both the diamond and amorphous carbon are converted into graphite. In the electric arc carbon appears to be converted into vapor; but the temperature which is required to volatilize it is extremely high; in fact, it has been calculated that the boiling point of carbon is not less than about 7000° on the centigrade scale.

When carbon is burnt in oxygen *carbonic dioxide* or *carbonic anhydride*, or, as it is commonly termed *carbonic acid*, is formed; if the supply of oxygen is deficient the lower oxide, *carbonic oxide*, is also produced, and the latter may be obtained in a pure state by passing the dioxide over red-hot carbon. Both are colorless, odorless gases. The union of carbon with oxygen gives rise to the evolution of a very large amount of heat, but much less heat is produced by the union of the first half of the oxygen than by the union of the second half.

Carbonic oxide burns in the air or oxygen with a blue flame, forming carbonic dioxide. It is an extremely poisonous gas, being capable of displacing the oxygen in blood, owing to the formation of a compound with the hæmoglobin with which the oxygen is ordinarily combined.

Carbonic dioxide will not burn, neither does it support combustion. Under the pressure of 36 atmospheres at 0° C. it is converted into a colorless mobile liquid. When the liquid is suddenly relieved from the pressure under which it alone can exist, part of it at once passes back into a state of gas, and heat is abstracted so rapidly that the remaining portion of the liquid solidifies. By allowing a jet of the liquid dioxide to pass into a cylindrical metal box, having within it an inclined metal tongue against which the jet of liquid impinges, a considerable quantity of the solid may be collected in the form of a white flocculent mass like snow. Like all flocculent substances, it conducts heat but slowly, and may be preserved for a considerable time. By mixing it with ether its heat-conducting power is greatly increased; it therefore evaporates much more quickly, and a much lower temperature is obtained than with the solid alone, and by placing the mixture under the receiver of an air-pump and exhausting, a still greater degree of cold is produced. According to Faraday, an alcohol thermometer plunged into a bath of the solid carbonic dioxide and ether in air indicates a temperature of -76° C., and in the same bath under a receiver exhausted to within 12 inches of the atmospheric pressure it fell to -110° C.; at the latter temperature alcohol assumes the consistence of a thick oil.

Carbonic dioxide dissolves in about its own volume of

water at ordinary temperature, forming *carbonic acid*; the solution has a sharp and slightly acid taste, and turns the blue color of litmus to wine-red. The volume of carbonic dioxide dissolved by water diminishes as the temperature rises, and at the boiling heat the whole is expelled from solution, the volume dissolved by water at a given temperature is nearly the same, however, under all pressures, so that the weight of gas absorbed increases in nearly the same proportion as the pressure. On removing the pressure the gas is given off with effervescence. Ordinary soda-water consists merely of water impregnated with carbonic dioxide by mechanical pressure.

CARBONARI, THE (from the Italian *carbonaro*, charcoal-maker), were certain secret societies of a liberal and even revolutionary tendency that took an active part in some events of Italian and French history during the first three decades of this century. Secret societies, calling themselves by this or a similar name, had indeed previously existed in various parts of Europe; but it was in Italy, towards the close of the Napoleonic wars, that these first began to assume an historic importance. In 1808 many republicans, discontented alike with the Bourbon and the Bonapartist government in Naples, had retired to the mountain recesses of the Abruzzi and Calabria. At first engaged only in an isolated resistance to the authorities, they began to organize themselves. They took the name of Carbonari, a name suggested by the trade of charcoal-burning extensively pursued in those regions, in which many of them were engaged. From this trade, too, but especially from the Christian religion, and above all from the crucifixion of Christ, they adopted a system of mystic rites and a symbolic phraseology, by which they concealed from the uninitiated, but all the more vividly expressed to the initiated, the real political aims of the society, while its apparently religious character served to attract many whom its revolutionary secrecy might have repelled. A lodge of Carbonari was *baracca* (a hut); an ordinary meeting, *vendita* (a sale); a meeting of importance, *alta vendita*;—these terms being borrowed from the trade of charcoal-burning. But for words to express the inner purpose of the society they borrowed from religion. Christ, as the highest victim of tyranny, was the lamb that had been put to death by the wolf; they were sworn to avenge his death; and so the destruction of the wolf to avenge the slaughter of the lamb became the symbolic watchword of the society.

There were four grades in the society; and the ceremonies of initiation were characterized by many mystic rites, through which the real meaning began only gradually to appear. Many efforts were made to bring about a complete organization of the Carbonari in Italy, by the institution of a central power which should control the separate societies of the various provinces, but they failed. Politicians soon discovered how easily capital could be made of such societies, and negotiations were entered into by the Bourbons to unite the Carbonari in an effort to overthrow the French Government in Naples. Accordingly, for two years they carried on a desultory warfare with King Murat, who at last, taking the matter thoroughly in hand, drove them into the mountains, from which they had emerged, and suppressed them for a time. Capobianco, their leader, was treacherously arrested and put to death. Ere long, the Carbonari reappeared and helped towards the final overthrow of the French power in Naples. But Ferdinand, who had courted them during his misfortunes, proved false to them on his return to power, though they were moderate enough in their political aims, being ready to content themselves with the establishment in Naples of the

constitution that had been enjoyed in Sicily under English supremacy. Henceforward they began to conspire against the Bourbon Government, and indeed soon spread over the whole of Italy, being more and more regarded as the champions of the liberal and national cause. They were the principal authors of the Neapolitan revolution of 1820, of the disturbances in the Papal States of the same year, and of the Piedmontese revolution of 1821. Previously recruited chiefly from the lower classes, the Carbonari now counted in their ranks almost all the intelligent and patriotic population of Italy, especially the middle classes, the officers of the army, the students at the universities, the artists, and even the priests,—to the number, it is said, of nearly 700,000. Unable, however, to resist the military power of Austria, backed by a European congress, the revolution and the Carbonari along with it were crushed.

It was about 1820 that Carbonarism began to take root in France. It made great progress there, especially among the students and sub-officers of the army. The example of Spain and Italy having incited the French Carbonari to immediate action, attempts to raise an insurrection were made in 1821 at Belfort, Thouars, La Rochelle, and other towns. They were all immediately suppressed. Though completely defeated in 1821, French Carbonarism did not die out, but continued to be an active factor of revolutionary discontent till 1830, when its members adhered to the government of Louis Philippe. Since 1848 Carbonarism generally has disappeared. The discontent that produced it has either been satisfied by the concession of constitutional government, or has found expression in other phases of the revolutionary movement.

CARBONDALE, a prosperous town of Jackson county, Ill., the center of a rich fruit-growing country and a productive mining district, is on the Illinois Central and Grand Tower and Carbondale railroads, 308 miles from Chicago and 57 miles from Cairo. The town contains two banks, two weekly papers, seven churches, graded schools, also the Normal School of Southern Illinois, and manufactories of lumber, machinery, woolen goods, flour, etc. Mining is extensively engaged in at points near the town, and large shipments of coal are annually made. Population, 5,000.

CARBONDALE, a growing city of Lackawanna county, Penn., is situated on the Lackawanna river a short distance from where it empties into the Susquehanna. The New York, Lake Erie and Western, and Delaware and Hudson Canal Company railroads pass through the city. Mining and manufacturing are very extensively carried on in the city and vicinity. The city contains two banks, three weekly papers, ten churches, a high school and two graded schools, an academy conducted under the auspices of the Catholic Church, three hotels, an opera house, and two public halls, stores, warehouses, etc., besides manufactories of machinery, oil tanks, springs, novelties in hardware, etc. Population (1890), 10,833.

CARBONIC ACID, CARBON DIOXIDE, or CARBON ANHYDRIDE, also called Fixed Air or Chokedamp, exists as a normal constituent of the atmosphere, of which it forms about $\frac{1}{2500}$ th part. Carbonic acid also exists in combination as *carbonates*, the most largely distributed of which are the carbonate of lime, CaCO_3 , either alone, or in combination with magnesium as *dolomite*, the blackband ironstone (carbonate of iron, FeCO_3), malachite (basic carbonate of copper CuH_2O_2 , CuCO_3), etc. The term *carbonic acid* is hardly a correct one, and it is better to call the gas, CO_2 , carbon dioxide, or carbonic anhydride, reserving the term carbonic acid for the solution in water. The gaseous car-

bonic acid is represented by the formula CO_2 , and contains 12 parts of carbon and 32 parts of oxygen by weight. It is a very dense gas, having a specific gravity of 1.529, that of air being 1.000. Carbonic acid is a colorless gas, possessing a pleasant, acidulous taste. Under a pressure of about forty atmospheres (600 lb. per square inch) it becomes condensed to a liquid. When the liquid carbonic acid is allowed to escape through a small jet, it rapidly evaporates and produces intense cold, with the result that a certain portion becomes frozen into a solid resembling snow. When pressed on the skin it produces the sensation of burning, and when thrown into a hot crucible along with mercury, the latter (under suitable conditions) becomes frozen into a solid mass. At ordinary pressures carbonic acid is soluble in about its own bulk of water, its solubility increasing with increased pressure. It may be very readily prepared from chips of marble, water, and hydrochloric acid, and is the principal product of combustion; the carbon of the burning substance (wood, coal, paper, coal-gas, etc.) uniting with the oxygen of the air to form carbonic acid, but it does not support combustion or animal life. A lighted taper is immediately extinguished when plunged into a vessel containing carbonic acid. It is also a product of respiration, and is evolved more or less largely by all animals not only by the lungs, but also by the skin. During the fermentation of beer or wine it is liberated, while decaying vegetable or animal matters give off the gas in quantity. There is a popular prejudice against having plants in a bedroom during the night-time. This is based on the fact that plants give off carbonic acid in the dark, while they absorb it during the day. Carbonic acid forms two classes of salts, called *carbonates* and *bicarbonates*. The bicarbonates differ from the carbonates in containing twice as much carbonic acid gas relatively to the base. Thus, carbonate of soda, Na_2CO_3 , may be regarded as consisting of soda, Na_2O , and carbonic acid, CO_2 ; while the bicarbonate, represented in the same way, would be $\text{Na}_2\text{O} + \text{H}_2\text{O} + 2\text{CO}_2$, or shortly, 2NaHCO_3 . The bicarbonates very readily lose the extra molecule of carbonic acid, yielding then the ordinary carbonate. The bicarbonate of lime is interesting as being the form in which most of the lime present in drinking water is held in solution. When the rain, impregnated with carbonic acid from the atmosphere, or charged with the gas from subterranean sources, percolates down through a chalky soil, it dissolves the chalk, or carbonate of lime, CaCO_3 , forming a bicarbonate, and thus becomes what is known as a *hard* water. Such a water may be readily *softened* by boiling, when the carbonic acid escapes, and the chalk, no longer soluble, falls to the bottom. This gives rise to the domestic phenomenon known as the furring of the kettle.

CARBONIC OXIDE is the lower oxide of carbon and is represented by the formula CO . It consists of twelve parts by weight of carbon and sixteen parts of oxygen. It does not occur naturally, but may be observed burning with a pale-blue flame in fireplaces and stoves, especially in frosty weather. During the combustion of the fuel at the lower part of the grate the oxygen of the air unites with the carbon of the fuel to form carbonic acid, CO_2 ; and this gas rising up through red-hot coal or carbon, C, has part of its oxygen abstracted by the carbon, and two molecules of carbonic oxide, CO , are produced, which, taking fire on the top of the coals, burn with the characteristic blue flame, abstracting more oxygen from the air, and reforming carbonic acid, CO_2 . Carbonic oxide is a transparent, colorless gas, with an oppressive odor. It is rather lighter than air, its specific gravity being only

968. In this it differs very markedly from carbonic acid. For many years it resisted all attempts to liquefy it, but at last it yielded to the modern methods of combined cold and pressure. It burns with a blue flame, but is a non-supporter of combustion, and at once extinguishes a lighted candle introduced into it. It is very poisonous, and even when largely diluted with air, if inhaled, it produces a sensation of oppressing and tightness of the head, and ultimately act as a narcotic poison.

CARBONIFEROUS SYSTEM. The strata included under this system rest upon those belonging to the Devonian and Old Red Sandstone system, and are overlaid by the Permian. The system derives its name from the amount of coal and carbonaceous matter which it contains. In North America the system is extensive. The carboniferous strata here are divided into two groups; the lower or sub-carboniferous, and the carboniferous, comprising the millstone grit and the coal measures. According to Professor Dana the coal-bearing area of the North American Continent is approximately as follows:

	Sq. Miles.
Rhode Island area.....	500
Alleghany area.....	59,000
Michigan area.....	6,700
Illinois, Indiana, West Kentucky.....	47,000
Missouri, Iowa, Kansas, Arkansas, Texas.....	78,000
Nova Scotia and New Brunswick.....	18,000

CARBUNCLE is a name applied in modern times to the various kinds of garnet employed by jewelers when cut *en cabochon*, that is, with a smooth convex surface, and the back either flat or hollowed out. On account of the deep red color of most garnets it is necessary to adopt this kind of cutting, especially when the stones are of any considerable size, in order to exhibit their rich hues by the light passing through a comparatively thin stratum of the material. The finest carbuncles come from Pegu and Ceylon, and they are sometimes found in masses of such dimensions that cups measuring as much as one and a half or two inches in height in diameter are cut out of them. See under **GARNET**.

CARBUNCLE, an acute local inflammation of the deeper layers of the skin, followed by sloughing. It is met with in those who are weakened by any cause, and in certain unhealthy constitutional states.

CARBURETTED HYDROGEN is a term in chemistry applied to several compounds of carbon and hydrogen. Thus, light carburetted or monocarburetted hydrogen, CH_4 , is the gaseous compound popularly known as marsh gas and fire-damp, and is the principal constituent of coal-gas. Heavy carburetted or bicarburetted hydrogen, C_2H_4 , is otherwise known as Olefiant Gas.

CARCAJENTE, a town of Spain, in the province of Valencia, two and one-half miles from the right bank of the Jucar. Population, 8,850.

CARCASSONNE, the chief town of the department of Aude, in France, is situated on both sides of the River Aude, and in the immediate neighborhood of the Canal du Sud, about fifty-five miles southeast of Toulouse, on the railway between that city and Narbonne. On an abrupt elevation on the right bank of the river stands the old city, inclosed by a double line of ramparts and towers, and retaining the aspect of a mediæval fortress. A portion of the inner line is attributed to the Visigoths; the rest, including the castle, seems to belong to the eleventh or twelfth century, while the outer circuit has been referred mainly to the end of the thirteenth. The old cathedral of St. Nazaire, which partly dates from the eleventh century, and contains magnificent stained glass windows of the Renaissance period, has been restored under the superintendence of M. Viollet-le-Duc.

Of the various industrial establishments the most important are the woolen factories—not less than 2,000 people being engaged in the manufacture of cloth, which is chiefly exported to the Levant, Barbary, and South America. Population in 1889, 25,000.

CARDAMOM, the fruit of several plants of the genera *Elettaria* and *Amomum*, belonging to the natural order *Zingiberaceæ*, the principal of which is *Elettaria Cardamomum*, from which the true officinal or Malabar cardamom is derived. The Malabar cardamom plant has fig-like leaves, springing from an erect perennial stem, and rising to a height of from six to twelve feet. The fruit is an ovate-triangular three-celled three-valved capsule of a dirty yellow color, inclosing numerous angular seeds, which form the valuable part of the plant. It is a native of the mountainous parts of the Malabar coast of India, and the fruits are procured either from wild plants or by cultivation throughout Travancore, Western Mysore, and along the Western Ghauts. Cardamoms generally are possessed of pleasant aromatic odor, and an agreeable spicy taste. On account of their flavor and stimulant properties they are much used with other medicines, and they form a principal ingredient in curries and compounded spices.

CARDAN (or, in the Italian form of the name, **CARDANO**), **GIROLAMO**, famous as a mathematician, a physician, and an astrologer, born at Pavia, September 24, 1501. About 1539 he obtained celebrity by the publication of his *Practice of Arithmetic*, a work of great merit for the time, which indirectly led to his renown as a mathematician by engaging him in a correspondence with Nicolo Tartaglia, an ingenious calculator who had discovered an important improvement in the method of cubic equations. This memorable volume marks an era in the history of mathematics, being the first in which the principle of cubic equations was fully explained, and the first example of the application of algebraical reasoning to geometrical problems.

The publication of his works on algebra and astrology gave him a European renown, and procured him flattering offers from Pope Paul III. and the king of Denmark, both of which he declined. In 1551 his reputation was crowned by the publication of his great work, *De Sutilitate Rerum*, which, crude and fanciful as it may now appear, in his own age embodied the soundest physical learning of the time and simultaneously represented its most advanced spirit of speculation. It was followed some years later by a similar treatise *De Varietate Rerum*, the two making in effect but one book.

Cardan had now attained the summit of his prosperity, and the rest of his life was little but a series of disasters. His principal misfortunes arose from the crimes and calamities of his sons, one of whom was an utter reprobate, while the tragic fate of the other overwhelmed the father with anguish. This son, Giovanni Battista, also a physician, had contracted an imprudent marriage with a girl of indifferent character, Brandonia Seroni, who subsequently proved unfaithful to him. The injured husband revenged himself in the Italian fashion with poison; the deed was detected, and the exceptional severity of the punishment seems to justify Cardan in attributing it to the rancor of his medical rivals, with whom he had never at any time been on good terms. Though he had always been careful to keep on terms with the Church, the bent of his mind had been palpably toward free thought, and the circumstance had probably attracted the attention of Pius V., who then ruled the Church in the spirit, as he had formerly exercised the functions of an inquisitor. Through the intercession, as would appear, of some influential cardinals, Cardan was released, but was deprived of his professorship, prohibited from teaching and

publishing any further, and removed to Rome, where he spent his remaining years in receipt of a pension from the Pope. He died on September 20, 1576.

CARDBOARD, or **CARD**, was formerly made by pasting or pressing together several layers of paper, according to the thickness and quality required, the outside sheets being generally white. It is now made from pulp, the product of rags or other material, which is passed through rollers under high pressure.

CARDENAS, a maritime town of the island of Cuba, capital of a district in the western department, is situated 105 miles east of Havana, on a bay of the northern coast, and has railway communication with Matanzas and Montalvo. Population (1889), 12,000.

CARDIFF (the "Caer," or castle on the Taff), a municipal and parliamentary borough in the county of Glamorgan, 170 miles from London by the Great Western railway. This town is the chief emporium of the coal and iron trade of South Wales. The population of the parliamentary borough, by the census of 1888 was 130,500, and since that date it has largely increased.

Historically, Cardiff is well known, but the castle remains and the old church of St. John and its noble pinnacled tower are almost the only remnants of antiquity. The ancient walls and gates, Blackfriars and Greyfriars, have been swept away, and the old church of St. Mary, finer than any local churches that succeeded was washed away by the sea. The Arthurian legend of the Sparrowhawk refers to Cardiff. Its position between the rivers Taff and Rhymney, and also between the mountains and the sea, marked it out, probably for the Romans, certainly for the Normans, as a fortified station. In the year 1108 Henry I. having taken prisoner his brother Robert duke of Normandy, imprisoned him in Cardiff Castle for twenty-six years until his death in 1134. Contrary to the prevalent tradition he was most probably treated with kindness, and permitted at times to change his abode. In the time of the Civil War Charles I. came to Cardiff, and the castle was alternately occupied by Royalists and Parliamentarians. There was severe fighting at St. Fagan's in the neighborhood. In 1661 we find the Cardiff authorities complaining of being ruined by the competition of the neighboring town of Caerphilly, but Caerphilly Castle is ruined and the town decayed, while Cardiff has greatly flourished. The local histories are full of the succession of different owners of the castle until the lordship of Glamorgan passed by marriage to the Bute family. The castle occupies a quadrangular space, and was probably once surrounded by earthworks, except towards the river. The area within the walls was 10 acres, within the counterscarp of the moat 13 acres. The mound within the great enclosures has the remains of the keep, or the White Tower. On the town or south side of the court are the Black or Curthose tower, the scene of Duke Robert's imprisonment, and the gateway. The castle was once of enormous strength, and so constructed to resist the incursions of the Welsh. The Lodgings or habitable part are now undergoing extensive demolition and reconstruction.

There is a great deal of activity and public spirit in Cardiff. The gas, sanitary and water arrangements are excellent. There are both public library and infirmary and plans for new and enlarged buildings for both institutions are in progress. The exports of Cardiff are almost entirely coal and iron; the imports, insignificant in comparison, are mainly iron ore, esparto fibre for paper-making, timber, and corn.

CARDIGAN, **COUNTY OF**, or **CARDIGANSHIRE**, a maritime county in South Wales, is bounded on the N.

by Merioneth, on the E. by Montgomery, Radnor, and Brecon, on the S. by Carmarthen and Pembroke, and on the W. by the Irish Sea. Its greatest length from south to north is about 30 miles, and its greatest breadth from east to west about 40 miles; but these dimensions give a very imperfect idea of its size, as it almost exactly represents in figure a "half-boot," the line of the sole being from east to west, with the toe at the extreme west. It possesses an area of 693 square miles, or 443,387 acres, and is therefore, the fifth in size of the Welsh counties. Population (1890), 85,000.

Cardiganshire is exceedingly wild and mountainous; but the mountains generally have little of grandeur in their character, Plinlimmon itself, in spite of its height, being singularly deficient in boldness of outline.

The county abounds in lakes and rivers. The chief of the latter is the Teifi, which rises in a lake of the same name (Llyn Teifi), about 8 miles north-east of Tregaron; flowing through the centre of the county, in a south-west direction, till it reaches Lampeter, it becomes from that point the county boundary, separating it from Carmarthen and Pembroke, and after a course of about 50 miles from its source, falls into the sea at Cardigan.

The women may often be seen dressed in the picturesque costume of Wales, and having their heads surmounted by the high-crowned broad-brimmed hat. Many curious customs and superstitions still survive. On the occasion of a marriage, a "bidder" goes from house inviting the inmates to the wedding. It is expected that all the guests are to bring presents of money and provisions. The marriage always takes place on a Saturday; but the guests assemble on Friday with their presents. All these are set down on paper, that repayment may be made if demanded; but this seldom happens. The furnishing of the bride is also brought home on this day. On Saturday ten or twenty of the man's friends who are best mounted go to demand the bride. She is placed on a horse behind her father, who rides off as fast as he can. He is soon, however, overtaken.

There are numerous British and Roman antiquities in the country, consisting of cromlechs, tumuli, camps, and stations, and also the remains of a Roman road (the Sarn Helen) about four miles from Tregaron, and the Roman town *Loventium* at Llanio.

CARDIGAN, a market town and municipal and parliamentary borough of England, the capital of the county of the same name, is situated on the south-east of Cardigan Bay, about 36 miles by rail from Carmarthen, at the mouth of the Teifi, which there divides the county from Pembrokeshire. Population, 5,000.

CARDIGAN, **JAMES THOMAS BRUDENELL**, **SEVENTH EARL OF**, and **Baron Brudenell** in the peerage of England, lieutenant-general, was born at Hambledon in Hampshire, October 16, 1797. He studied for several terms at Christ Church, Oxford; and in 1818 entered parliament as member for the borough of Marlborough under the patronage of Lord Ailesbury. He entered the army in 1824 as cornet in the 8th Hussars, and was promoted in 1832 to be lieutenant-colonel in the 15th Hussars. With this regiment he made himself one of the most unpopular of commanding officers. He gave the reins to his natural overbearing and quarrelsome temper, treating his men with excessive rigor and indulging in unscrupulous licentiousness. Within two years he held 105 courts-martial, and made more than 700 arrests, although the actual strength of his regiment was only 350 men. In consequence of one of his numerous personal quarrels, he left the regiment in 1834; but two years later, at the urgent entreaty of his father, he was reinstated in the army, and appointed to the

command of the 11th Hussars. He played the same part as before, and was censured for it; but he was allowed to retain his post, and the discipline and equipment of his regiment, in which he took great pride, received high commendation from the duke of Wellington. He succeeded to the peerage on the death of his father in August 1837. In 1854, at the outbreak of the Crimean War, the earl of Cardigan was appointed to the command of the light cavalry brigade, with the rank of major-general, and he spent a very large sum in the purchase of horses and on the equipment of his regiment. The feat which made his name famous was the charge of his brigade numbering 600 men, on a body of Russian heavy cavalry 3600 in number at the battle of Balaklava (October 25, 1854). He forced his way through the enemy, but half his men and horses were left dead on the field. The charge, celebrated by Tennyson in his well-known lyric, has been the subject of much controversy,—some critics having an eye only to the splendid daring and unquestioning obedience to orders, and others seeing only a foolhardy and unjustifiable throwing away of valuable lives. At the close of the war the earl was created K.C.B., and was appointed inspector-general of cavalry, and this post he held till 1860. In 1859 he was promoted colonel of the 5th Dragoon Guards, but was transferred in the following year to the command of his former regiment, the 11th Hussars. He attained the rank of lieutenant-general in 1861. He was twice married, in 1826, and in 1858, but had no children. On his death, which took place at Deene Park, Northamptonshire, on the 28th of March 1868, the titles passed to his relative, the marquis of Ailesbury.

CARDINAL, the name of the highest dignity in the Roman Catholic hierarchy. Very varying statements are found in the ecclesiastical historians respecting the origin of the name, the period at which it was first used, and the persons to whom it was applied in the earliest time of its use. This uncertainty is easily explained by the fact that both the thing and the name were at no time appointed and created, but grew up by successive and mainly abusive encroachments legitimized by usage, and from time to time more formally by Papal briefs and bulls. There can be little doubt that the word was originally applied to priests in the same sense in which it was and is applied to other things, as synonymous with "principal," that on which a thing hinges (*cardo*, a hinge).

If the origin and early use of the term cardinal is obscure, the institution of a collegiate body consisting of cardinals and of none other is yet more so. There seem to be traces of such a conception in the life of Leo III., written by Anastasius the librarian. And Moroni cites many passages from various authors and documents between the above date and 1100, with a view of showing that, at all events, by the end of that time the body of cardinals was recognized as a collegiate corporation. But his citations seem to prove rather the reverse. Nor do we reach solid ground in this respect till we come to the bull of Sixtus V. (3d December 1585), which finally regulates the composition of the *Sacro Collegio*. By this instrument seventy is fixed as the maximum number of the sacred college "after the example of the seventy elders appointed by God as counsellors of Moses." Nor has the number ever been exceeded since that time, though it is expressly laid down by the authorities on the subject, that no canonical disability exists to prevent the pope from exceeding that number should he see fit to do so. By the same bull it is also provided that the seventy of the Sacred College should consist of six cardinal bishops, fifty cardinal priests, and fourteen cardinal deacons. The six cardinal bishops are the bishops

of the sees lying immediately around Rome. The fifty cardinal priests take their "titles" from the principal churches in Rome, but are many of them bishops or archbishops of distant sees, and four must be by regulation members (usually the "generals") of the monastic orders. The fourteen deacons take their titles from the "deaconries" established in the earliest ages of the Church for the assistance and protection of the widows and orphans of the faithful. It may be added here that Sixtus V., by the above-mentioned bull, decrees that if any person created a cardinal be not in deacon's orders, he must receive them within the year. But "dispensations," by virtue of which the dignity has been held for many years by men not even in deacons' orders, have been common. If any cardinal should be in such a position at the time of the Pope's death, he cannot enter conclave or participate in the election, unless by immediately qualifying himself by taking orders.

As the institution of cardinals was entirely arbitrary and an abuse, so, despite the shadow of an attempt to find or make a *raison d'être* for their existence in the assignment of such dignities to certain special sees and churches in and around Rome, their connection with those churches very soon became purely nominal and formal; and everything connected with the selection of them depended wholly on the will of the pontiff. The limits, which might be supposed to have bounded the field from which the Pope could select the objects of his favor, became constantly enlarged.

Many volumes have been written on the different forms used by the popes in the creation of cardinals in different ages, and many more still larger treatises *ex professo* on the strictly ecclesiastical, as well as what may be more properly called the social, portions of the accustomed ceremonial. But it must suffice here to characterize very generally the differences which have prevailed from age to age in the first respect, and to say but a few words on the second head.

The general tendency of the changes which have taken place in the methods used for the creation of cardinals may be very shortly stated. They have been such as indicate the steadily increasing absolutism of the pontiffs. A proclamation to the congregation including an invitation to any person to state any ground of objection known to him soon gave place to a real consultation of the college by the Pope, and a real assent on the part of the cardinals to the proposed new nominations, which in its turn dwindled off at a very early period to a mere form of asking and receiving consent. In the earlier centuries the creations almost always took place on the first Wednesday of the *Quattro Tempora*, and generally in the Basilica of Santa Maria Maggiore. There, after the *Introit* and collect of the Mass had been said, a reader ascended the pulpit and proclaimed the intended creation of such and such persons, ending with an invitation precisely similar to that used in our churches in the publication of banns of marriage, and a real inquiry followed the statement of any objector. At a later period the Pope asked of the cardinals assembled in secret consistory whether in their opinion there should be a creation of cardinals, and of how many? And a deputation was sent to the residence of any cardinals who might be ill to bring back their replies to the same questions. Then, satisfactory answers having been obtained from at least the majority, the Pope said "*Portetur nuda cathedra*." The chair was brought, and placed at his right hand. Thereupon all the cardinals rose, and stood ranged against the wall at a distance out of earshot of the Papal throne. The dean of the Sacred College placed himself in the empty chair, and the Pope told him in a low voice whom he purposed to create, adding "*Quid vobis videtur?*" One

by one all present were similarly interrogated, and then the Pope said aloud, "*Deo gratias habemus de personis creandis concordiam omnium fratrum,*" or "*quasi omnium,*" or "*majoris partis,*" as the case might be. And then the pontiff at once proclaimed the new dignitaries:—"*Auctoritate Dei Omnipotentis, Sanctorum Apostolorum Petri et Pauli, et nostra creamus Sanctæ Romanæ Ecclesiæ Cardinales Presbyteros quidem....N.N..... Diaconos vero....N.N.....cum dispensationibus, derogationibus, et clausulis necessariis et opportunis.*" He then thrice made the sign of the cross, saying as he did so, "*In nomine Patris, &c., Amen,*" and the consistory was at an end.

In later times the proclamation having been made in consistory by the simple announcement, "*Habemus fratres*" so and so, the act of conferring the dignity with its insignia on the new recipients was performed at the Papal palace, and was accompanied by a mass of minutely ordered ceremonial which rendered it one of the most pompous and gorgeous scenic performances of the Roman Church and court. It would need many pages to describe the form and order of the ceremony, the intricacies of which no one was ever expected to remember or understand save the professional masters of the ceremonies, whose business it is to have mastered the science.

The chief of the insignia of a cardinal's dignity is the scarlet hat,—the original significance of which was, we are told, to remind the wearer that he was to be at all times ready to shed his blood in martyrdom for the faith. At an early period it became, and has since continued to be, a huge unwearable construction of silk and hanging tassels, such as may be seen suspended from the roofs of cathedrals over the tombs of cardinals. So much is the hat the main mark of a cardinal's dignity, that to "receive the hat" is in common parlance equivalent to being made a cardinal. The canonical vestments of a cardinal are scarlet, and in the city and in their homes the hems and such like of their coats, and also their stockings, are of the same color,—in Italian parlance "purple." Hence, "to aspire to the purple," "to receive the purple," is also equivalent to being a candidate for or being made a cardinal. Their Eminences also wear a scarlet "beretta," a four-cornered cap of the shape well known in pictures and engravings, and a scarlet "berettina," or skull-cap. Until the time of Urban VIII. the cardinals were styled "*Illustrissimi*;" but that pope decreed that they should for the future be called "*Eminentissimi*," and addressed as "your Eminence."

It remains to add a few words on the privilege of a cardinal as an elector of the pontiff; and though the subject is a large one, a very few words will suffice, because the treatment of it falls more properly and conveniently under other headings. In perfect consistency with every other portion of the history of the institution, the right and privilege of the cardinals to elect the Pope is an abuse and has been attained by a long series of encroachments which have gradually eliminated the originally democratic constitution of the Church. The popes were at first chosen by the whole body of the faithful, then by the whole body of the clergy; then by the cardinals with the consent of the clergy, and, ultimately, absolutely and exclusively by the cardinals. That the mode of election has passed through these phases is certain; but the chronological details of the changes are extremely obscure. The methods pursued in the election belong to another place. And this article may be concluded by a statement of the fact, often misapprehended, that the right of a cardinal to enter conclave with his brethren and vote for the new Pope is indefeasible; and he is not to be deprived of it by any

declaration of the late Pope or deposition by him, or by any amount of unworthiness, however patent. Cases are on record in which popes have sought by every means in their power to prevent certain cardinals from taking part in the election that would follow their death, and some in which monstrous crimes have rendered such exclusion reasonable and right in every point of view. But in every such case the college has overruled the provisions of the deceased pontiff, and admitted the acknowledged member of their body to take part in the election.

CARDINAL BIRD, or **RED BIRD** (*Cardinalis virginianus*), also spoken of as Cardinal Finch, Cardinal Grosbeak, and Virginian Nightingale. The color of the male is usually red, the head being vermilion, and only a small portion of the plumage around the base of the bill and on the upper throat being black. The feathers of the crown are long, and erected into a conical crest, like a red cap. The cardinal abounds in Texas, Florida, and the Southern States generally, migrating northward in spring.

CARDINAL VIRTUES (Lat. *cardinalis*, chief, from *cardo*, a hinge). The cardinal virtues of the ancients were Justice, Prudence, Temperance, Fortitude.

CARDITIS, or inflammation of the heart, a form of disease of very rare occurrence, if the term be limited in its application to cases of true acute inflammation of the muscular structure of the heart alone (myocarditis).

CARDONA (perhaps the ancient *Udura*), a fortified town of Spain, in the province of Catalonia, about fifty-five miles northwest of Barcelona. It occupies the summit of a hill near the banks of the Cardonera, a branch of the Llobregat, and from the strength of its position has been able to bid defiance to repeated attacks. Population about 3,000.

CARDS, PLAYING, rectangular pieces of pasteboard, used at games. The invention of playing cards has been attributed to various nations. In the Chinese dictionary *Ching-tsze-tung* (1678), it is said that cards were invented in the reign of Sëun-ho, 1120 A. D., for the amusement of his numerous concubines. There is a tradition that cards have existed in India from time immemorial, and that they were invented by the Brahmans. A pack of cards, said to be a thousand years old, is preserved in the museum of the Royal Asiatic Society; but modern critics are of opinion that these cards are of recent date. The invention of cards has also been assigned to the Egyptians, but apparently on no better authority than the belief that the representations on tarots may be so interpreted as to connect them with Egyptian philosophy. To the Arabs, Germans, Spaniards, and French have also been ascribed the invention of cards, but on grounds of varying feebleness.

The safe conclusion with regard to the introduction of cards is that, though they may possibly have been known to a few persons in Europe about the middle of the fourteenth century, they did not come into general use until the end of the century, and that whence they were brought has not yet been ascertained.

It does not follow that because the earliest positive mention of a series of cards is French, they were not previously known in other parts of Europe. It seems more likely, if their eastern origin is accepted, that they traveled quickly through Europe to France. Early in the fifteenth century card-making had become a regular trade in Germany, whence cards were sent in small casks to other countries. Cards were also manufactured in Italy at least as early as 1425, and in England before 1463.

It has been much disputed whether the earliest cards were printed from wood blocks. This is a question of

some importance, as, if answered in the affirmative, it would appear that the art of wood engraving, which led to that of printing, may have been developed through the demand for the multiplication of implements of play. The belief that the early card-makers or card-painters of Ulm, Nuremberg, and Augsburg, from about 1418-1450, were also wood-engravers, is founded on the assumption that the cards of that period were printed from wood-blocks. It is, however, clear that the earliest cards were executed by hand, like those designed for Charles VI. Many of the earliest woodcuts were colored by means of a stencil, so it would seem that at the time wood-engraving was first introduced, the art of depicting and coloring figures by means of stencil plates was well known. There are no playing cards engraved on wood to which so early a date as 1423 (that of the earliest dated wood-engraving generally accepted) can be fairly assigned; and as at this period there were professional card-makers established in Germany, it is probable that wood-engraving was employed to produce cuts for sacred subjects before it was applied to cards, and that there were hand-painted and stencilled cards before there were wood-engravings of saints.

The marks of the suits on the earliest cards (German) are hearts, bells, leaves, and acorns. No ace has been discovered corresponding to the earliest known pack, but other packs of about the same date have aces, and it seems unlikely that the suits commenced with the deuces.

Next in antiquity to the marks mentioned are swords, batons, cups, and money. These are the most common on Italian cards of the late 15th century, and are now used both in Italy and in Spain. French cards of the 16th century bear the marks now generally used in France and England, viz., cœur, trèfle, pique, and carreau.

About the last quarter of the fifteenth century, packs with animals, flowers, and human figures, for marks of the suits, were engraved upon copper; and later, numerous variations appeared, dictated by the caprice of individual card-makers; but they never came into general use.

The court cards of the early packs were king, chevalier, and knave. The Italians were probably the first to substitute a queen for the chevalier, who in French cards is altogether superseded by the queen. The court cards of French packs received fanciful names, which varied from time to time.

CARDUCCI, BARTHOLOMEO (1516-1610), better known as CARDUCHO, the Spanish corruption of his Italian patronymic, was born in Florence, where he studied architecture and sculpture under Ammanati, and painting under Zuccherò. The latter master he accompanied to Madrid, where he painted the ceiling of the Escorial Library, assisting also in the production of the frescoes that adorn the cloisters of that famous palace. He was a great favorite with Philip III., and lived and died in Spain, where most of his works are to be found. The most celebrated of them is a *Descent from the Cross*, in the church of San Felipe el Real, in Madrid.

CARDUCCI, or CARDUCHO, VINCENZO (1568-1633), was born in Florence, and was trained as a painter by his brother Bartholoméo, whom he followed to Madrid. He worked a great deal for Philip III. and Philip IV., and his best pictures are those he executed for the former monarch as decorations in the Pardo Gallery. Examples of him are preserved at Toledo, at Valladolid, at Segovia, and at several other Spanish cities. For many years he labored in Madrid as a teacher of his art, and from his *atelier* issued Giovanni Ricci, Pedro Obregon, Vela, Collantes, and other distinguished representatives of the Spanish school during the seventeenth century. He was also author of a treatise, or dialogue, *De las Excelencias de la Pintura*, which was published in 1633.

tise, or dialogue, *De las Excelencias de la Pintura*, which was published in 1633.

CARDUCCI, GIOSUE, the foremost of contemporary Italian poets, was born in 1836. His earliest poems, *Juvenilia* and *Levia Gravia*, were written in imitation of Manzoni and Alfieri. His greatest works are the *Decennalia* and the *Nuove Poesie*.

CARDWELL, EDWARD, VISCOUNT, born July 24, 1813. He entered Parliament in 1842, as a Peelite, held portfolios in four Cabinets, and was raised to the peerage in 1874. He was one of Peel's literary executors, and edited his *Memoirs* (1856-57). He died February 15, 1886.

CARDWELL, EDWARD, a learned divine and ecclesiastical historian, was born at Blackburn, England, in 1788, and died at Oxford, May 23, 1861.

CARET (Lat. it is wanting), a character denoting that something has been omitted and is interlined.

CAREW, GEORGE (died about 1613), second son of Sir Wymond Carew of Antony, was educated at Oxford, entered the Inns of Court, and passed some years in Continental travel. At the recommendation of Queen Elizabeth, who conferred on him the honor of knighthood, he was appointed secretary to Sir Christopher Hatton, and afterward, having been promoted to a mastership in chancery, was sent as ambassador to the king of Poland. In the reign of James he was employed in negotiating the treaty of union with Scotland, and for several years was ambassador to the Court of France. On his return he wrote a *Relation of the State of France*, with sketches of the leading persons at the Court of Henry IV. It is written in the classical style of the Elizabethan age, and was appended by Dr. Birch to his *Historical View of the Negotiations between the Courts of England, France and Brussels, from 1592 to 1617*.

CAREW, GEORGE (1557-1629), Earl of Totness, and Baron Carew of Clopton, Warwickshire, was born in 1557. After completing his studies at Oxford, he joined the army, and held an important command in the Irish wars against the Earl of Desmond and the rebels. His greatest exploit was the capture of Dunboy castle, a success which disappointed the Spanish allies, and in reality put an end to the war. For his services in Ireland he was made governor of Guernsey, and was raised to the peerage. He was afterward made privy-councilor to James I., and died at London in 1629.

CAREW, RICHARD, author of the *Survey of Cornwall*, was born in 1555, and died in 1620.

CAREW, THOMAS, an English poet, was born about the year 1589, and died in 1639.

CAREX, a genus of Cyperaceæ, commonly known as Sedges, including about 1,000 species, which are distributed throughout temperate and arctic climates. There are nearly 200 species found in the United States east of the Mississippi.

CAREY, HENRY, (died 1743), a humorous poet and musical composer, was an illegitimate son of George Savile, Marquis of Halifax, and was born toward the end of the seventeenth century.

CAREY, WILLIAM, D.D., a Baptist missionary and Oriental scholar, was born at Paulersbury, Northamptonshire, England, in 1761. When a youth he worked with his father, who was a shoemaker, but before he was twenty years of age he joined the Baptists, and devoted a large portion of his time to village preaching. In 1787 he became pastor of a Baptist congregation in Leicester, and five years after was chosen by a Baptist missionary association to proceed to India as their missionary. On reaching Bengal, Carey and his companions lost all their property in the Hugli; but

having received the charge of an indigo factory at Malda, he was soon able to prosecute the work of translating the Bible into Bengali. In 1799 he quitted Malda for Serampore, where he established a church, a school, and a printing press for the publication of the Scriptures and philological works. In 1801 Carey was appointed professor of Oriental languages in a college founded at Fort-William by the Marquis of Wellesley. From this time to his death he devoted himself to the preparation of numerous philological works, consisting of grammars and dictionaries in the Mahratta, Sanskrit, Punjabi, Telinga, Bengali, and Bhotanta dialects. The Sanskrit dictionary was unfortunately destroyed by a fire which broke out in the printing establishment. From the Serampore press there issued no fewer than twenty-four different translations of the Scriptures, all edited by Dr. Carey. He died in 1834.

CARGILL, DONALD, one of the leaders of the Scotch Covenanters, was born in 1610. He was educated at St. Andrews, and afterwards attached himself to the Protesters. After his appointment to one of the churches in Glasgow, he made himself obnoxious to Government by his open resistance to their measures. Compelled to remain at a distance from his charge, he ventured back to celebrate the communion, and was arrested, but was liberated at the instance of some of his private friends. He was afterwards wounded at the battle of Bothwell Bridge, and fled to Holland, where he remained a few months. On his return he joined Richard Cameron in publishing the Sanquhar declaration, and boldly excommunicated the king and his officials. He was soon afterwards apprehended, and brought to Edinburgh, where he was beheaded on the 27th July 1681.

CARIA, a maritime province of Asia Minor, forming the south-western angle of the whole peninsula. It was bounded on the N. by Ionia and Lydia, on the W. and S. by the Ægean Sea, and on the E. by Lycia and a small part of Phrygia. Its limit to the north was the river Mæander, except near the mouth, where its cities of Miletus and Myus, with their territories, though on the south side of the Mæander, were included in Ionia. Its precise eastern limit is not so clearly fixed, but may be considered as an arbitrary line drawn from the Mæander a little east of Antiochia to the lofty mountain mass of Mount Cadmus (Baba-dagh), and thence along the great ridge of Salbacum (Boz-dagh) in a direction nearly south to the sea, where the promontory on the west of the Gulf of Macri constitutes the limit between it and Lycia.

Like most of the provinces in Asia Minor, Caria was not merely a territorial division, but an ethnographical district.

CARIACO, or SAN FELIPE DE AUSTRIA, a town on the north coast of Venezuela, in the state of Cumana, situated at the east end of the gulf to which it gives its name. The surrounding district produces cotton of the finest quality. Population about 7,000.

CARIACOU, or CARJACOU; also called Virginian Deer (*Cervus virginianus*), a species of deer found in all parts of North America, from Mexico to about 43° N. latitude, and from the Atlantic to the Pacific Ocean. The color is light reddish brown in spring, slaty blue in autumn, and gray in winter; the belly, throat, chin, and inner parts of the limbs white. The horns of the adult male are of moderate size, bent backward, and then forward, so as to bring their tips nearly above the nose; they have several prongs. The fawn is decked with white spots, arranged in lines, and sometimes running into stripes. The Virginian deer is timid, but easily domesticated.

CARIAMA (*Dicholophus cristatus*), a South Ameri-

can bird, regarded by some as allied to cranes, and referred to the order Grallæ, by others as a game bird, and placed among the Gallinaceæ, but most properly ranked, along with the Secretary, among the birds of prey.

CARIBBEAN SEA, that part of the Atlantic Ocean lying between the coasts of Central and South America and the islands of Cuba, Hayti, and Porto Rico, and the Leeward and Windward Islands.

CARIBBEE ISLANDS, in its more extended sense, is a name applied to the whole of the West Indies; but strictly, it only comprehends that cluster of islands stretching from Porto Rico to the coast of South America, and known as the Leeward and Windward Islands. See WEST INDIES.

CARIBS (in German *Karaiben*), a people of Red Indian race, which, at the time of the discovery of America by Columbus, was the most important along the northern coast of the southern continent, and in a number of the islands of what is still known as the Caribbean Sea. They were a strongly-built, warlike, and aggressive people, and offered a pertinacious resistance to the advances of the Europeans, before whose arrival they had rendered themselves an object of terror to the other inhabitants of the region. They appear to have been addicted to cannibalism, and the very word cannibal is not improperly derived from a corruption of their name. Honduras is now their chief settlement.

CARICATURE (Italian *caricatura*, i.e., "*ritratto ridicolo*," from *caricare*, to load, to charge; French *charge*) may be defined as the art of applying the grotesque to the purposes of satire.

Little that is not conjectured can be written concerning caricature among the ancients. Few traces of the comic are discoverable in Egyptian art,—three papyri only of a satirical tendency being known to exist, and these appearing to belong rather to the class of ithyphallic drolleries than to that of the ironical grotesque. Among the Greeks, though but few and dubious data are extant, it seems possible that caricature may not have been altogether unknown. That the grotesque in plastic art was practised by the Romans is evident from the curious frescoes unearthed at Pompeii and Herculaneum; from the mention in Pliny of certain painters celebrated for burlesque pictures; from the curious fantasies graven in gems and called Grylli; and from the number of ithyphallic caprices that have descended to modern times. But in spite of these evidences of Greek and Roman humor, in spite of the famous statuette of Caracalla, and of the more famous *graffito* of the Crucifixion, the caricaturists of the old world must be sought for, not among its painters and sculptors, but among its poets and dramatists. The comedies of Aristophanes and the epigrams of Martial were, to the Athens of Pericles and the Rome of Domitian, what the etchings of Gillray and the lithographs of Daumier were to the London of George III. and the Paris of the Citizen King.

It is in the tumult of the Renaissance that caricature in its modern sense may be said to have been born. The great popular movements required some such vehicle of comment or censure; the perfection to which the arts of design were attaining supplied the means; the invention of printing insured its dissemination. The earliest genuine piece of pictorial irony that has been discovered is a caricature (1499) relating to Louis XII. and his Italian War. But it was the Reformation that produced the first full crop of satirical ephemera, and the heads of Luther and Alexander VI. are therefore the direct ancestors of the masks and smirk and frown from the "cartoons" of *Punch* and the *Charivari*. Fairly started by Lucas Cranach, a friend of Luther, in

his *Passionale of Christ and Anti-christ* (1521), caricature was naturalized in France under the League, but only to pass into the hands of the Dutch, who supplied the rest of Europe with more or less satirical prints during the whole of the next century. A curious reaction is visible in the work of Peter Breughel (1510-1570) towards the grotesque *diablerie* and macaberesque morality of mediæval art, the last original and striking note of which is caught in the compositions of Jacques Callot (1593-1635), and, in a less degree, in those of his followers, Stefano della Bella (1610-1664) and Salvator Rosa (1615-1673). On the other hand, however, Callot, one of the greatest masters of the grotesque that ever lived, in certain of his *Caprices*, and his two famous sets of prints, the *Misères de la guerre*, may be said to anticipate certain productions of Hogarth and Goya, and so to have founded the school of ironical *genre* which now-a-days does duty for caricature.

In England, during the 16th century, caricature can hardly be said to have existed at all,—a grotesque of Mary Stuart as a mermaid, a pen and ink sketch of which is yet to be seen in the Rolls Office, being the only example of it known. The Great Rebellion, however, acted as the Reformation had done in Germany, and Cavaliers and Roundheads caricatured each other freely. At this period satirical pictures did duty as the title pages of scurrilous pamphlets; but one instance is known of the employment during the war of a grotesque allegory as a banner, while the end of the commonwealth produced a satirical pack of playing cards, probably of Dutch origin.

The 18th century, however, may be called emphatically the Age of Caricature. The spirit is evident in letters as in art; in the fierce grotesques of Swift, in the coarser *charges* of Smollett, in the keen ironies of Henry Fielding, in the Aristophanic tendency of Foote's farces, no less than in the masterly moralities of Hogarth and the truculent satires of Gillray. The first event that called forth caricatures in any number was the prosecution (1710) of Dr. Sacheverell; most of these, however, were importations from Holland, and only in the excitement attendant on the South Sea Bubble, some ten years later, can the English school be said to have begun. Starting into active being with the ministry of Walpole (1721), it flourished under that statesman for some twenty years,—the "hieroglyphics," as its prints were named, graphically enough, often circulating on fans. It must not be forgotten that this period witnessed also the rise of William Hogarth (1697-1764). As a political caricaturist this great man was not successful, save in a few isolated examples, as in the portraits of Wilkes and Churchill; but as a moralist and social satirist he has not yet been equalled. The publication, in 1732, of his *Modern Midnight Conversation* may be said to mark an epoch in the history of caricature. Mention must also be made of Paul Sandby (1725-1809), who was not a professional caricaturist, though he joined in the pictorial hue-and-cry against Hogarth and Lord Bute, and who is best remembered as the founder of English school of water-color; and of John Collet (1723-1788), said to have been a pupil of Hogarth, a kindly and industrious humorist, rarely venturing into the arena of politics. During the latter half of the century, however, political caricature began to be somewhat more skillfully handled than of old by James Sayer, a satirist in the pay of the younger Pitt, while social grotesques were pleasantly treated by Henry William Bunbury (1750-1811) and Woodward. These personalities, however, interesting as they are, are dwarfed into insignificance by the great figure of James Gillray (1757-1815), in whose hands political caricature became almost epic for grandeur of conception and far-

reaching suggestiveness. It is to the works of this man of genius, indeed, and (in a less degree) to those of his contemporary, Thomas Rowlandson (1756-1827), an artist of great and varied powers, that historians must turn for the popular reflection of all the political notabilia of the end of the 18th and the beginning of the 19th centuries. England may be said to have been the chosen home of caricature during this period. In France, timid and futile under the Monarchy, it had assumed an immense importance under the Revolution, and a cloud of hideous pictorial libels was the result; but even the Revolution left no such notes through its own artists, though Fragonard (1732-1806) himself was of the number, as came from the gravers of Gillray and Rowlandson. In Germany caricature did not exist. Only in Spain was there to be found an artist capable of entering into competition with the masters of the satirical grotesque of whom England could boast. The works of Francisco Goya y Lucientes (1746-1828) are described by Théophile Gautier as "a mixture of those of Rembrandt, Watteau, and the comical dreams of Rabelais," and Champfleury discovers analogies between him and Honoré Daumier, the greatest caricaturist of modern France.

The satirical grotesque of the 18th century had been characterized by a sort of grandiose brutality, by a certain vigorous obscenity, by a violence of expression and intention, that appear monstrous in these days of reserve and restraint, but that doubtless sorted well enough with the strong party feelings and fierce political passions of the age. After the downfall of Napoleon (1815), however, when strife was over and men were weary and satisfied, a change in matter and manner came over the caricature of the period. In connection with this change, the name of George Cruikshank (1792-1878), an artist who stretches hands on the one side towards Hogarth and Gillray, and on the other towards Leech and Tenniel, deserves honorable mention. Cruikshank's political caricatures, some of which were designed for the squibs of William Hone (1779-1842), are comparatively speaking, uninteresting; his ambition was that of Hogarth—the production of "moral comedies." Much of his work, therefore, may be said to form a link in the chain of development through which has passed that ironical *genre* to which reference has already been made. In 1829, however, began to appear the famous series of lithographs, signed H.B., the work of John Dolye (1798-1868). In France, meanwhile, with the farcical designs of Pigal and the realistic sketches of Henri Monnier, the admirable portrait-busts of Dantan the Younger, and the fine military and low-life drolleries of Charlet (1792-1845) were appearing, and in these modern social caricature may be said to be fairly embodied. Up to this date, though journalism and caricature had sometimes joined hands (as in the case of the *Craftsman* and the *Anti-jacobin*, and particularly in *Les Révolutions de France et de Brabant* and *Les Actes des Apôtres*), the alliance had been but brief; it was reserved for Charles Philipon (1802-1862), who may be called the father of comic journalism, to make it lasting. *La Caricature*, founded by Philipon in 1831, and suppressed in 1833 after a brief but glorious career, was followed by *Le Charivari*, which is perhaps the most renowned of the innumerable enterprises of this extraordinary man. Among the artists he assembled round him, the highest place is held by Honoré Daumier, a draughtsman of great skill, and a caricaturist of immense vigor and audacity. Another of Philipon's band was Sulpice Paul Chevalier (1801-1866), better known as Gavarni, in whose hands modern social caricature, advanced by Cruikshank and Charlet, assumed its present guise, and became elegant. Mention must also be made of Grand-

ville (1803-1847), the illustrator of La Fontaine, and a modern patron of the mediæval skeleton; of Traviés, the father of the famous hunchback, "Mayeux;" and of Amedée de Noé, or "Cham," the wittiest and most ephemeral of pictorial satirists. In 1840, the pleasantries of "H.B." having come to an end, there was founded, an imitation of this enterprise of Philipon, a comic journal which, under the title of *Punch, or the London Charivari*, has since become famous all over the world. Its earliest illustrators were John Leech (1817-1864) and Richard Doyle, whose drawings were full of the richest grotesque humor. It is in the pages of *Punch* that the growth of modern pictorial pleasantry may best be traced. Of late years all the "cartoons," or political caricatures, have been the work of John Tenniel; they exhibit few of the features of caricature as it was understood by Gillray and Daumier; their object is not to excite hatred or contempt, but most to raise a smile.

Of caricature, in the primitive sense of the word, there is but little. The fall of the French Empire and the subsequent siege of Paris, together with the reign of the Commune — a popular movement, though confined to a single city — produced a plentiful crop of genuine caricatures, remarkable both for bitterness and for ability. Among the few caricatures that now find favor may be mentioned the graceful and genial caprices of Sambourne, the clever portraits of "Gill," a Parisian artist, and especially the remarkable series of portraits published in London since 1862, in *Vanity Fair*, the work of Pellegrini, which are certainly the most remarkable of their kind that have appeared since the superb grotesques of Honoré Daumier.

CARIES, ulceration of bone, is the result of inflammation, and resembles in its chief characteristics ulceration in soft tissues, as skin and muscle. Situated in a tissue largely composed of inorganic material, it is chronic in its course, and cured with difficulty. The exciting cause is generally an injury. It is frequently associated with scrofula.

CARIGNANO, a town of northern Italy, in the province of Turin, and about 20 miles south of that city, is situated on the left bank of the Po, here crossed by a wooden bridge. Population, 8,000.

CARIMATA ISLANDS, a group in the East Indian Archipelago, lying to the West of Borneo, between that island and Billiton, in the channel to which they give their name. They are about sixty in number, but their united area is not more than 170 square miles. The most important are Great Carimata (with a peak rising to about 2000 feet), Panumbangan, the Pelapis Islands, Lissing, Bessii, Maledang, Surutu, and Pulu Lima. Their principal productions are edible nests, honey, wax, gutta percha, turtles, trepang and shellfish. At one time the cluster formed a small independent principality; but it afterwards became subject to Matan, and it is now attached to Pontianak. Several of the islands are altogether uninhabited, and the whole population is very small. See Veth's *Woordenboek van Nederl. Indië*.

CARINI, a town in Sicily, in the province of Palermo, on a rivulet of the same name, 12 miles W.N.W. of Palermo. It is pleasantly situated on an elevation, and is a neat, clean town, with a Gothic castle. On the coast, about three miles distant, are ruins of the ancient *Hyccara*, which was chiefly famous as the birthplace of Lais. Population about 9500.

CARINOLA, a town of Italy, in the province of Terra di Lavoro, a district of Gaeta. Pop. 8,000.

CARINTHIA (in German, *Kärnten* or *Kärnthen*), a duchy, and since 1849 a crown-land of Austria, is bounded on the E. by Styria, on the N. by Styria and Salzburg, on the W. by Tyrol, and on the S. by Italy,

Görz, and Carniola. It has an area of 4006 English square miles, and a population of 336,400. The surface is for the most part mountainous, being occupied in the north by part of the Norian Alps, and in the south by those named the Carinthian Mountains, or the Karawanken. The principal river is the Drave, which flows from W. to E. through the length of the duchy, and receives in its course the waters of all the other streams, except the Fella, which reaches the Adriatic by junction with the Tagliamento. In its eastern half, the valley opens out into a considerable plain, which contains the important lakes of the Wörthersee and the Ossiachersee. The duchy is divided into the seven districts of Hermagor, Klagenfurt, Spittal, St. Veit, Villach, Völkermarkt, and Wolfsberg, — the capital Klagenfurt forming an independent and eighth division. There are in all ten towns, twenty-eight market villages, and 2911 hamlets, — the most populous places, besides the chief towns of the districts, being Bleiberg, Friesach, and Feldkirchen. With the exception of 19,000 Lutherans, the inhabitants are Roman Catholics; and more than two-thirds of them are of German race.

CARIPE, or CARIBE, a town of Venezuela, in the state of Cumana, and about 40 miles from the city of that name. It is the chief station of the mission to the Chayma Indians, and is famous for the extensive system of caves in the limestone rock in the neighborhood, which have been described by Humboldt. These extend inwards a distance of 2800 feet, and have a height of 70 or 80 feet. They are frequented by a species of night hawk, which builds in the recesses of the rocks. The young are killed in great numbers for the sake of their oil. The population of the town and valley is estimated at 5000.

CARISBROOKE, a village in the Isle of Wight, about a mile S. of Newport, at the base of a steep conical hill crowned by the castle, to which its celebrity is principally due. Population (1890), 9,000.

CARISSIMI, GIACOMO, one of the most celebrated masters of the Italian, or, more accurately, the Roman school of music. Of his life almost nothing is known, and Fétis, who has made his biography a subject of special study, has been able to do little more than correct inaccurate or fictitious statements of previous writers. The only authenticated facts are the following. Carissimi was born about 1604, at Marino, near Rome, and received his first musical education at home. At the age of 20 he became chapel-master at Assisi, and in 1628 he obtained the same position in the church of St. Apollinaris, belonging to the Collegium Germanicum in Rome, which he held till his death in 1674. He never seems to have left Italy, the rumor of his prolonged stay in Paris being entirely unfounded.

CARLETON, a village of New Brunswick, situated on the west shore of St. John's harbor, immediately opposite the city of St. John, of which it is one of the most accessible and attractive suburbs. It communicates with all parts of the island by way of the European and North American railway and connecting lines; with the city of St. John by ferry, and thence with other points in the vicinity by rail and steamer. Carleton contains several churches, schools and academies, a number of stores and many fine residences. There are manufactures of lumber and lumber products, and foundries and machine shops. The population is 6,000.

CARLETON, SIR DUDLEY, an English statesman, was born in Oxfordshire in 1573, and educated at Christ Church College, Oxford. He published several works, consisting chiefly of speeches, letters, and other productions on political subjects. The most valuable

appeared after his death, and consist of a selection of letters to and from Sir Dudley Carleton during his embassy to Holland, from January 1616 to December 1620, 4to, 1757.

CARLETON, WILLIAM (1798-1869), a popular Irish novelist, was born at Prillisk Clogher, in the county of Tyrone.

When about the age of nineteen he undertook one of the religious pilgrimages then so common in Ireland. His experiences as a pilgrim were such as at a later period made him resign for ever the thought of entering the church. His vacillating ideas as to a mode of life were determined in a definite direction by the reading of *Gil Blas*, which chance had thrown in his way. He resolved to cast himself boldly upon the world and try what fortune had in store for him. He went to Killanny, and for six months acted as tutor in a neighboring farmer's family. Soon tiring of this occupation, he set out for Dublin, and arrived in the metropolis with 2s. 9d. in his pocket. He began to contribute to the journals, and his paper *The Lough Derg Pilgrim* which was published in the *Christian Examiner*, excited great attention. In 1830 appeared the first series of *Traits and Stories of the Irish Peasantry*, which at once placed the author in the first rank of Irish novelists. A second series appeared in 1832, and was received with equal favor both in Ireland and in England. From that time till within a few years of his death Carleton's literary activity was incessant. The best of his many productions are *Fardarougha the Miser*, perhaps on the whole the finest and most powerful of all his works; *The Tithe Proctor*; *Valentine M'Clutchy*; *The Black Prophet*; *The Emigrants of Ahadarra*. Some of his later writings, such as *The Squanders of Castle Squander*, were not so successful as the earlier tales. The author was not happy in describing the upper classes of Irish society, and overloaded his work with political or semi-political matter.

Carleton, after spending some years in America, settled in Dublin, where he died on the 30th January 1869.

CARLI, or CARLI-RUBBI, GIOVANNI RINALDO, COUNT OF, a celebrated Italian writer on antiquities and economics, was born at Capod' Istria, in 1720, and died in February, 1795.

CARLINVILLE, the capital of Macoupin county, Ill., is situated on the Chicago and Alton railroad, 224 miles south of Chicago, 38 miles in a southwesterly direction from Springfield, the State capital, and is one of the most prosperous trade centers in that part of the State. It contains two banks, ten churches, a high school and graded schools, being also the location of the Blackburn Presbyterian University. Semi-weekly, weekly and semi-monthly papers are published. The court-house is one of the largest and handsomest in the West, and the other buildings include stores, warehouses, public halls, private residences, hotels, etc., conspicuous for the beauty of their design and the substantial character of their construction. The manufactures embrace lumber, agricultural implements, pumps, tiles, carriages, buggies, woolen goods, etc. Population in 1890, 5,000.

CARLISLE, a parliamentary and municipal borough, the capital of Cumberland, 301 miles N.N.W. from London; 54° 54' N. lat., 2° 55' W. long. It is situated on an eminence enclosed by three streams—the Eden, the Caldew, and the Petteril.

Carlisle was the *Luguwallum* of the Romans. This name was afterwards abbreviated to *Luell*, and with the prefix *Caer* (a city), became *Caer-Luell*, and afterwards by easy transition, *Carliol* and *Carlisle*. After the departure of the Romans in the 5th century the Picts laid the city in ruins; but in the 7th century it

was rebuilt by Egfrid, king of Northumberland. In 875 the town was attacked by the Danes, who burned the houses, pulled down the wall, and massacred the inhabitants. In this state of desolation it was left for 200 years, with no inhabitants but some few Celts who lodged themselves among the ruins. In 1092 William Rufus, impressed with the importance of Carlisle as a Border military station, ordered the town to be rebuilt and fortified, and left a garrison there. It was not, however, until after the capture of the town in the reign of Stephen, by David, king of Scots (who died within its walls in 1153), that the castle, the walls, and the citadel were completed.

After undergoing two sieges the town was surrendered to the English Crown in 1217. Edward I. held three parliaments in Carlisle. In 1298, after the battle of Falkirk, he marched to Carlisle; and nine years later it was while crossing Burgh Marsh, about four miles from that city, with his army, to quell the third revolt which had occurred in Scotland during his reign, that he sickened and died. A monument has been erected on the spot to commemorate the event. With his last breath he enjoined his son to prosecute the enterprise, and never desist until he had completed the subjugation of Scotland. The nobles hastened to Carlisle to pay homage to the new king, Edward II., to whom, however, the legacy of vengeance against the Scots proved but a "heritage of woe." In 1315, after the independence of Scotland had been won by the decisive battle of Bannockburn, Robert Bruce following up his success by ravaging the north of England, besieged Carlisle Castle. There he met with determined resistance on the part of the garrison, and the inhabitants, under Sir Andrew Harcla, governor. Bruce, who had his headquarters at the cathedral, made a general assault on all the gates of the town on the ninth day; but the citizens defended their position with such vigor that the besiegers soon beat a retreat, having only killed two of the besieged. Sir Andrew Harcla was created earl of Carlisle and Lord Warden of the Marches for his gallant defense of the city; but he was afterward found guilty of treason and executed at Harraby Hill. In 1345 the Scots burned Carlisle and Penrith. "They were very much annoyed," says Lysons, "by small forces collected by Bishop Kirkby and Sir Thomas Lacy. The bishop and Sir Robert Ogle had a sharp skirmish with the enemy; the prelate was unhorsed during the encounter, but having recovered his saddle continued to fight valiantly, and contrived greatly to win the victory." Nor was it only the "church militant" which did the state much service in those days. In one of the sieges the women of Carlisle helped in the defence of the city by pouring boiling water and rolling heavy stones from the walls upon the heads of the beleaguering Scots below. In the 15th century Richard, duke of Gloucester, was governor of Carlisle Castle, and during his governorship extensive repairs were made in the old fortress, and in the course of time, during the reigns of Henry VIII. (who built the citadel) and Elizabeth, it was adapted to artillery. In 1568 Mary Queen of Scots, having fled from Lochleven, arrived in a fishing boat at Workington, a Cumberland seaport 32 miles from Carlisle, and was there met by the deputy-governor of Carlisle, and conducted to Carlisle Castle, where she was lodged nominally as a guest but actually as a prisoner. She remained there for two months. A little later in the same year a daring exploit was performed by the duke of Buccleuch. William Armstrong, a redoubtable Borderer, better known as "Kinmont Willie," having been taken prisoner in disregard of a truce or understanding which facilitated his capture, the "Bold Buccleuch," with 200 followers, attacked

Carlisle Castle, and rescued the prisoner, an achievement which gave dire offence to Queen Elizabeth.

During the civil wars Carlisle was harassed by frequent troubles; but the next event of importance occurred in 1644, when the city and castle were besieged by the Parliamentary forces under General Leslie for eight months. Sir Thomas Glenham, the commander-in-chief of the royal troops, was in charge of the garrison, who were reduced to great extremities before they surrendered on the 25th June 1645.

In the Scottish rebellion of 1745 Carlisle again figured in history. The Pretender, Prince Charles Edward, laid siege to it, the three divisions of the army with which he marched from Edinburgh having converged at the city. The castle was at that time garrisoned by only two companies of invalids and some disaffected militia, and Colonel Durand, who was in command, found it necessary, with great reluctance, to surrender. But in December of the same year the duke of Cumberland arrived and bombarded the castle, and on the 30th the garrison surrendered. The tower in which Mary Queen of Scots was imprisoned was pulled down in 1835; but a considerable portion of the ancient castle still remains, and it is used as a garrison for the 2d Brigade Depot.

Carlisle suffered in 1380 from a great fire, which destroyed 1500 houses in three of the principal streets; and the plague in 1598 carried off 1076 persons, one-third of the inhabitants.

Carlisle is the see of a bishop. The cathedral was founded by William Rufus, and completed by Henry I.

It is a great railway centre. The London and North-Western, the Midland, the Caledonian, the North British, and the Glasgow and South-Western Railways have each a terminus there; while the North-Eastern Company have access to the city by their Newcastle and Carlisle section. The principal business is the manufacture of cotton goods, the finishing of silesias, the printing of calicoes, and the manufacture of biscuits. There are also within the city two or three large iron-works, and the manufacture of felt hats is carried on upon a large scale. A dock and railway to Silloth, on the Solway Frith, 21 miles from Carlisle, were constructed in 1855 to facilitate the transit of the commerce of the district, and this gradually superseded Port Carlisle. The population as returned by the United States census of 1890 was 40,000.

CARLISLE, capital of Cumberland county, Pa., about two and one-half miles south of the Conedgowinet creek, and eighteen miles west of Harrisburg by the Cumberland Valley railway. The town is well built, has spacious streets, and contains thirteen churches. Of its public buildings the most interesting is Dickinson College, which was founded in 1783, and possesses an extensive library. In the immediate neighborhood are barracks, which date from 1777, and are capable of containing 2,000 men; and about four miles to the north, in a pleasant valley of the Blue Mountains, is the summer resort known as Carlisle Springs. Carlisle was founded in 1751, and in 1794 it was the headquarters of Washington during the Whisky Rebellion. On the night of July 1, 1863, it was bombarded by the Confederate troops. Population (1890), 8,420.

CARLISLE, FREDERICK HOWARD, FIFTH EARL OF, a statesman and author, was born in 1748, and died in 1825; he took no important part in public life. Carlisle was the author of some political tracts, a number of poems, and two tragedies, the *Father's Revenge* and the *Stepmother*, which received high praise from his contemporaries.

CARLISLE, GEORGE WILLIAM FREDERICK HOWARD, SEVENTH EARL OF, Lord-Lieutenant of Ireland.

was born in London, 18th April, 1802. He was educated at Eton and Christ Church, Oxford, where he earned a reputation as a scholar and writer of graceful verse, obtaining in 1821 both the Chancellor's and the Newdigate prizes for a Latin and an English poem. In 1826 he accompanied his uncle, the duke of Devonshire, to Russia, to attend the coronation of the Emperor Nicholas, and became a great favorite in society at St. Petersburg. At the general election of the same year he was returned to parliament as member for the family borough of Morpeth. In one of his earliest speeches he undertook, at the risk of forfeiting the good opinion of the Liberal party, the defence of the Russian emperor against severe attacks made on him in reference to the suppression of the Polish insurrection of 1830. In the agitation for parliamentary reform he took the side of Earl Grey; and after the dissolution of parliament, which took place about that time, he was elected member for Yorkshire. This seat he held till after the passing of the Reform Bill in 1832. In the following year he was returned for the West Riding; and in 1835 he was appointed by Lord Melbourne Chief Secretary for Ireland, a position at that time of great difficulty, O'Connell being then at the height of his reputation. This post he held for about six years, winning great popularity by his amiable manners and kindly disposition. Losing his seat at the election of 1841, he availed himself of the leisure thus afforded him to visit the United States. He afterwards gave an account of this visit in a popular lecture, first delivered at Leeds, and subsequently repeated at other places. In 1846 he was again elected for the West Riding. Two years later, on the death of his father, he succeeded to the peerage and took his seat in the Upper House. He accepted office as Chief Commissioner of Woods and Forests, and afterwards as Chancellor of the Duchy of Lancaster. The great event of his life, however, was his appointment by Lord Palmerston to the Lord-Lieutenancy of Ireland in 1855. This high office he continued to hold till March 1858, and again from June 1859, till within a few months of his death.

CARLOVINGIANS, or KARLINGS, the second dynasty of Frankish kings. The family came from the eastern part of the Frankish kingdoms, and its origin traced to Arnulph, Bishop of Metz, at the beginning of the seventh century.

CARLOW, an inland county of Ireland, in the province of Leinster, and comprising an area of 346 square miles, or 221,342 acres. It is bounded on the north by Kildare and Wicklow, east by Wicklow and Wexford, south by Wexford, and west by Queen's County and Kilkenny.

The surface of the county is in general level or gently undulating, and of pleasing appearance, except the elevated tract of land known as the ridge of Old Leighlin, forming the commencement of the coal measures of Leinster, and the southeastern portion of the county bordering on Wexford, where the wild and barren granitic elevations of Knockroe (1,746 feet) and Mount Leinster (2,610 feet) present a bolder aspect.

The soil is of great natural richness. Agriculture is the chief occupation of the inhabitants, but is not so fully developed as the capabilities of the land would suggest. The population is about 50,000.

CARLOW, a parliamentary borough, and the capital of the county of Carlow, situated on the River Barrow, which is navigable for small craft to its junction with the Grand Canal at Athy, is forty-five miles (fifty-six by rail) southwest of Dublin. Population, 8,000.

The industries of the place consist of brewing and flour-milling, and a considerable trade is carried on in the sale of butter and eggs.

CARLOWITZ, a town of Hungary, in the former Slavonian military frontier and circle of Peterwardein, is situated on the right bank of the Danube, eight miles southeast of Peterwardein. Population in 1873, 4419. It is the seat of the Greek archbishop in the Austrian dominions, and has, besides the cathedral, two Greek churches, a Roman Catholic church, Servian and German schools, seminaries for the Greek and Catholic clergy, a gymnasium, a lyceum and a hospital. There is important wine cultivation. The peace between Austria, Turkey, Poland, and Venice was concluded here in 1699.

CARLSBAD, or KAISERKARLSBAD, formerly WARY, a royal free town of Bohemia, on the Tepel, near its junction with the Eger, 70 miles W.N.W. of Prague. It is situated in a beautiful narrow valley between steep granite mountains, and consists chiefly of lodging-houses and hotels for the accommodation of visitors, but also has some good shops and private houses, a theatre, hospitals, as well as schools, reading-rooms, &c. It is the seat of the district judge, custom-house, and excise. Carlsbad is the most aristocratic watering-place in Europe. It is more frequented from the middle of June to the middle of August, and the number of visitors numbering from 12,000 to 20,000. The permanent population is nearly 9000 (1873). The warm springs differ but little from each other in their component parts, the principal ingredients being sulphate of soda, carbonate of soda, and common salt. Of the ten springs the Sprudel, Hygiea, Bernhardt, Neubrunnen, and Schlossbrunnen are the principal, having temperatures ranging from 165° to 122° Fahr. They are said to have been discovered in 1370, during a hunting excursion, by the Emperor Charles IV., to whom a statue has been erected in the market place. The resident inhabitants make many curious articles in iron, steel, tin, and wood, for which they find a ready market during the season. The mountains in the neighborhood have been made accessible, and here and there nice plots of ground have been laid out for visitors. The town has a post-office, railway, and telegraph stations. It lies in 50° 13' N. lat. and 12° 53' E. long.

CARLSBURG, a town of Transylvania, capital of the county of Unter-Weissenburg, on the north bank of the Maros, 54 miles south of Clausenburg. Pop., 10,000.

CARLSHAMN, or KARLSHAVEN, a small seaport town of Sweden, in the laen of Carlskrona, on the Baltic, twenty-seven miles west of Carlskrona. Population, 7,000.

CARLSKRONA, or BLEKNIGE, a laen or province of Sweden, bounded on the N. by Kronoberg, N.E. by Calmar, E. and S. by the Baltic, and W. by Christianstadt. It has an area of 5398 square miles, and 127,877 inhabitants. Its principal towns are Carlskrona, Carlshamn, and Soelvesborg. The smallest and most fertile province of the kingdom, it has a mild climate and has been called the garden or Park of Sweden. The inhabitants are lively and distinguished for beauty, and the principal industries are connected with agriculture and forestry, fishery, and shipping.

CARLSKRONA, the capital of the above province, a seaport on the Baltic, in 56° 10' N. lat., 15° 33' E. long., 55 miles east of Christianstadt. It is named from its founder, Charles XI., and is built upon five small islands connected with each other and with the mainland by bridges. Population 17,000.

CARLSRUHE or KARLSRUHE (CHARLES' REST), a city of Western Germany, capital of the grand duchy of Baden. It stands on an elevated plain of the Hardwald (which nearly surrounds it), 380 feet above the level of the sea, 5 miles from the Rhine, and 39 miles W.N.W. of Stuttgart. The Frankfort and Basel Railway passes the city. Karlsruhe takes its name from

Charles William, margrave of Baden, who, owing to disputes which he had with the citizens of Durlach, erected in 1715 a hunting-seat, around which the town has since been built. From the palace the principal streets, seventeen in number, radiate in the form of an expanded fan, in a S.E., S., and S.W. direction. The palace, erected in 1751 on the site of the previous erection of 1715, is a plain building in the old French style, composed of a centre and two wings, presenting nothing remarkable except the octagon tower (*Bleithurm*), from the summit of which a splendid view of the city and surrounding country is obtained, and the marble saloon, in which the meridian of Cassini was fixed or drawn. In front of the palace is the Great Circle, a semi-circular line of buildings, containing the Government offices and the palace of the margraves of Baden. Karlsruhe has several fine public squares, the principal of which are the Castleplace — with Schwanthaler's statue of the late grand duke Charles Frederick in the centre — and the market-place. In the centre of the latter is a pyramid in honor of Charles William, the founder of the city, whose remains are interred there. Among the public buildings are the council-house, the palace of the margrave of Baden, hall of representatives, mint, post-office, barracks, arsenal, theatre, hall of fine arts, museum, the famed polytechnic school (with 800 students), cannon foundry, a synagogue, and several Protestant and Catholic churches. The town is adorned with several public fountains, and is supplied with water by an aqueduct from Durlach. Karlsruhe carries on a considerable trade, and has engineering, carriage, chemical, silk, cotton, carpet, woollen, jewelry, tobacco, and snuff manufactories. The town is surrounded by beautiful parks and gardens. Population 43,000.

CARLSTAD, a province or laen of Sweden, also called Wermland's Laen. It is bounded W. and N.W. by Norway, N.E. by Falun, E. by Obevo, and S. by Wenersborg and Lake Wener. The surface is mountainous and wooded, and is interspersed with numerous lakes and rivers. The province contains 300 iron mines, 80 foundries, and 300 forges. The neighborhood of Fyrksdalen is called the Swedish Switzerland. The principal towns are Carlstad, Christenshamn, and Philipstad. Population 264,000.

CARLSTAD, the capital of the above province, stands on the island of Tingvalla, at the mouth of the Clara-Elf, on the north shore of Lake Wener. One of two bridges connecting it with the mainland is the longest stone bridge in Sweden. Population, 9,000.

CARLSTADT, a royal free city of Austrian Croatia, in the comitat of Agram, the capital of the district of the same name, stands on the Kulpa, which here receives the Korana and the Dobra, thirty-two miles southwest of Agram. Population, 8,000.

CARLSTADT (KARLSTADT), a district of Bavaria, in Lower Franconia, containing 29,014 inhabitants. The capital, of the same name, which is situated on the right bank of the River Main, has a population of 2240.

CARLSTADT, KARLSTADT, or KARLOSTADT (1480-1541), whose real name was ANDREAS RUDOLF BODENSTEIN, one of the boldest of the German Reformers, first the friend and afterwards the opponent of Martin Luther, was born at Carlstadt in Franconia, in 1480, thus being by three years Luther's senior. In early life he was distinguished by a thirst for knowledge, and a restless disposition which led him to visit various countries and to pass from school to school. He went to Rome, and there plunged into the scholastic philosophy and theology; and having obtained the degree of bachelor of divinity, he arrived, in 1504, at Wittenberg. Here he was appointed professor at the

university, first in the philosophical faculty, and ultimately (in 1513) in the theological. After obtaining his degree of doctor in theology in 1510, he held a canonry and was chosen archdeacon. In 1511 he was appointed dean or rector of the university; and in the following year it fell to his lot to confer the degree of doctor on Luther. At this time their friendship appears to have begun. Carlstadt had already attained a high reputation for learning, eloquence, and logical power. For the purpose of studying the canon law he went a second time to Rome in 1515, returning to Wittenberg in the following year. In the storm of persecution which raged against Reuchlin, Carlstadt took the part of the persecuted scholar. He also adopted about this time the views of Luther; and in April 1517 he published a series of theses in which he asserted that the authority of Holy Scripture was above that of the fathers of the church, and that in the absence of Scripture decision an appeal must be made from the fathers to reason. It was at the end of October in the same year that Luther affixed his theses to the church door at Wittenberg, and Carlstadt strenuously supported him. In 1519 he undertook to hold a disputation with Dr. Eck, one of the greatest scholars of the age, on grace and free will. It took place at Leipsic in June, at the very time when the diet was sitting at Frankfort for the election of the emperor. Carlstadt as debater was not able to cope with Eck; and the discussions were tedious and almost fruitless. In the Papal bull against Luther, promulgated in 1520, Carlstadt was particularly named and condemned; and he was the first to appeal from the judgment of the Pope to a general council.

In 1521 he accepted an invitation from Christian II. of Denmark to teach the doctrines of the Reformation in that kingdom, but he made a very short stay there. Differences of opinion and petty jealousies were beginning to spring up between Luther and Carlstadt; and these ripened into bitter discussion and open hostility. Carlstadt's impetuous temper led him to become the advocate of violent measures for the attainment of those ends which Luther and the other Reformers hoped to compass by persuasion. In consequence of the riotous agitation stirred up in Wittenberg by his speeches, writings, and manner of procedure during Luther's confinement in the Wartburg, Luther declared openly against him. For the next two years he remained quiet. But in 1523, being compelled to leave Wittenberg, he retired to Ormalünde in Thuringia, and there got himself elected pastor by the people. His violent proceedings favored the suspicion that he was associated with the Anabaptists, and was implicated in the schemes of Münzer, leader of the great peasant revolt. The elector of Saxony sent Luther to investigate the true state of things; and when Luther preached against Carlstadt at Jena they held a discussion on the "Real Presence," which Carlstadt was the first to deny, and an open quarrel broke out between them. He was now ordered to leave the territories of the elector. For some time he wandered about from place to place, and at Rotenburg excited fresh tumults and instigated the people to destroy the images and pictures in the churches. Pursued as a promoter of the peasant insurrection, he was driven to strange shifts, and exposed to great hardships, his life even being in danger. In his extremity he wrote to Luther, offering to prove his innocence, and entreating him to intercede for him with the elector, and get permission for him to return to Saxony. Luther listened to him, printed his defence, and succeeded in inducing the elector to comply with his request. For several years Carlstadt led a quiet, retired life, engaged in farming and commerce. But he grew weary of this enforced suppression of his eager life and longings, and, allying

himself with some of the fanatical teachers, he once more attacked Luther. The controversy, in which Zwingli took part in support of the views of Carlstadt on the Supper, grew fiercer than ever; and Carlstadt, the permission for his return to Saxony being now revoked, made his escape into Friesland. Thence he passed into Switzerland, where, through Zwingli's influence, he was named first a deacon in the church of Zurich and then pastor at Altstetten. He afterwards returned to Zurich as archdeacon, and preached there with much success. In 1534 he settled as pastor and professor of theology at Basel, and this post he occupied till his death. To his exemplary Christian character and life at Basel testimony is borne by Grynæus in a letter to Pitiscus, chaplain of the Elector Palatine. As Carlstadt was the first to assert several of the leading principles of Protestantism, so was he also the first to write against celibacy, and the first Protestant divine to take a wife. He died at Basel, December 24, 1541.

CARLUKE, a burgh of barony, in the county of Lanark, Scotland, situated near the right bank of the Clyde, five miles northwest of Lanark. Pop., 5,000.

CARLYLE, JOSEPH DACRE, a celebrated Orientalist, was born in 1759 at Carlisle, and died in 1804.

CARMAGNOLA, a town of Italy, near the right bank of the Po, in the province of Turin, and 16 miles by rail to the south of that city. On its capture in 1792 by the army of the Revolution, its name became famous as the title of a republican dancing-song which finished every verse with the refrain — *Dansons la Carmagnole, Vive le son du canon*. The word thus introduced to popularity was soon applied to a vest of common stuff and peculiar shape, which was recognized as the sign of a true republican; and not long after it was jocularly used to designate the exaggerated reports that were published of the victories of the patriot army.

CARMAGNOLA, FRANCESCO BUSSONE, COUNT OF (1390–1432), one of the most celebrated Condottieri of the early part of the 15th century, was born at Carmagnola in 1390.

CARMARTHEN, COUNTY OF, or CARMARTHENSHIRE (Welsh *Caerfyrddin*), a county in South Wales, bounded on the N. by Cardigan, on the E. by Brecon and Glamorgan, on the S. by Carmarthen Bay, an inlet of the Bristol Channel, and on the W. by Pembroke. Its greatest length is, from S.W. to N.E., about 40 miles; its greatest breadth, S.E. to N.W., about 24 miles. It possesses an area of 947 square miles, or 606,172 acres (of which about 95,600 are occupied by commons and waste land), and is thus the largest of all the Welsh counties. It contains 5 hundreds and 97 parishes, and a population of 120,000.

The climate is mild, except in the very elevated parts of the county; but the annual fall of rain is very great, amounting at Carmarthen in 1875 to no less than 60.87 inches. Agriculture is generally not in a very forward condition; but progress is being made in efficient drainage under the provisions of the Drainage Acts, and better modes of agricultural practice are coming into use. The soil varies very much; but in the southern parts of the county, and in the larger valleys, it is exceedingly fertile.

In the south-east there are extensive and valuable coal and iron mines. There are also some important lead mines, and limestone is abundant in the south.

Welsh is the language commonly spoken by the lower orders, and in the northern parts of the county the manners and customs of the people are as purely Welsh as in any part of the principality.

Carmarthenshire is rich in antiquities, and possesses the traces of three important Roman roads, besides encampments and several early British remains. The

two most interesting mediæval ruins are those of Carreg Cennin and Dynevor castles.

CARMARTHEN, the capital of the Carmarthenshire, is a parliamentary and municipal borough, and forms a county of itself with an area of 4996 acres.

It was a fortified place at an early period. It is generally believed to be the *Maridunum* of the Romans near which two branches of the great road, the *Via Julia*, diverged. Population. 12,000.

CARMEL, a mountain promontory of Palestine which runs out into the Mediterranean to the south of the bay of Acre. Gradually retiring from the coast it stretches south-east for a distance of sixteen or eighteen miles, and then sinks abruptly to form a connection with the mountains of Samaria. Its greatest height is about 1750 feet. By the Biblical authors it is celebrated for its fertility; and its very name, which signifies the "vineyard of the Lord," bears witness to its repute. At present there are only a few unimportant patches subjected to cultivation; and most of the mountain is covered with a thick brushwood of evergreens which rises at some parts into forest. In the poetical books of the Scriptures allusions to Carmel are frequent; and it is especially celebrated in Biblical story as the scene of the sacrifice by Elijah which decided the claims of Jehovah and Baal. At a slightly later period the mountain afforded an asylum to the prophet Elisha; and, according to Jamblichus, Pythagoras sought the inspiration of its solitudes. In the time of Vespasian, it was the seat of an oracle. The sanctity and seclusion of the place attracted a number of Christian hermits as early as the 4th century; and here in the 12th century originated the order of the Carmelites. In 1209 the convent of St. Brocardus was founded at the fountain of Elijah; but the monks were massacred in 1238 and the building fell into decay. Another convent was erected in 1631; but it was destroyed in 1821 by Abd-ullah of St. Jean d'Acre, who employed the ruins to build the walls of his city. A few years later the building was restored by command of the Porte, the expense being defrayed partly by Abd-ullah and partly by the contributions procured by the monk John Baptist who wandered through a part of Europe, Asia, and Africa, in pursuit of his mission. The building is large and commodious, and hospitable entertainment is freely rendered by the fraternity to travellers of any nation or religion whatever.

CARMELITES, one of the four orders of Mendicant Friars. It is perhaps difficult to say whether upon the whole the Franciscans or the Carmelites have invented and propagated the more monstrous fictions respecting their own commencements and subsequent story. But as regards the very tender point of their first foundation, the latter must be admitted to have distanced their competitors. For the history of the Franciscans at least commences with a basis of solid and indubitable historical fact, whereas in the case of the Carmelites we plunge at once into the region of fable, and fable of the most monstrous kind. Mount Carmel is celebrated in Scripture as the abode of Elijah and Elisha, the former of whom the Carmelites claim as their founder. We first, however, reach the solid ground of something like history in the account left by Phocas, a Greek monk of the Isle of Patmos, who visited the Holy Land in 1185, and who concludes the narrative of his journeying by relating that the cave of Elias was then visible on Mount Carmel, and that there had existed there a large monastery, as might still be seen from the remains of the buildings; that some years previously a monk in priest's orders, with white hair, had arrived there, coming from Calabria, and had established himself there in obedience to orders

given him by Elias in a vision. He made, continues Phocas, a small enclosure among the ruins of his monastery, and built a bell tower and a little church. He then collected about ten companions, with whom, concludes Phocas, he still continues to live there. To these recluses, Albert, bishop of Vercelli, who had become patriarch of Constantinople, gave a "rule" about the year 1209. And this must be considered to constitute the foundation of the Carmelite order.

This rule consists of only sixteen articles; and it appears from it that the monks on Mount Carmel were at that time eremitical, dwelling in separate little houses. The lodging of the prior was placed at the entrance into the enclosure, and the church was in the middle of the enclosed space. The rule contains the ordinary injunctions and prohibitions as regards masses and other services to be heard or said, and kinds of food to be avoided, with some unimportant specialties of dates and seasons. Albert further enjoined on them to labor constantly with their hands, and to practise much silence. This rule was approved by Pope Honorius III. in 1226.

CARMICHAEL, GERSHOM (1672-1729), a metaphysician of whom Sir William Hamilton has said that he "may be regarded, on good grounds, as the real founder of the Scottish school of philosophy."

CARMINE, a pigment of a bright red color obtained from cochineal. It may be prepared by exhausting cochineal with boiling water, and then treating the clear solution with alum, cream of tartar, or acid oxalate of potassium; the coloring and animal matters present in the liquid are thus precipitated. Its discovery is attributed to a Franciscan monk of Pisa. Carmine is used in the manufacture of artificial flowers, water-colors, rouge, cosmetics, and crimson ink, and in the painting of miniatures. Carmine Lake is a pigment obtained by adding freshly precipitated alumina to a decoction of cochineal.

CARMONA, a town of Spain in the province of Seville, situated about 15 miles east of the city of that name, on a gentle elevation that overlooks an extensive plain. Its castle, now in ruins, was formerly the principal fortress of Peter the Cruel, and contained a spacious palace within the defences. The principal entrance to the town is an old Moorish gateway; and the gate on the road to Cordova is partly of Roman construction. Part of the ancient college of San Teodomir is of Moorish architecture, and the tower of the church of San Pedro is an imitation of the Giralda at Seville. Population, 20,704.

CARNAC, a village of France, in the department of Morbihan and arrondissement of L'Orient, about 9 miles south-west of Auray, which is the nearest railway station. It owes its celebrity to the rude stone monuments in its vicinity, which are among the most extensive and interesting of their kind. The most remarkable consist of long avenues of *maenhirs* or standing stones; but there is also a great profusion of other erections, such as dolmens and barrows, throughout the whole district. About half a mile to the north of the village is the Menec system, which consists of eleven lines, numbers 942 *maenhirs*, and extends a distance of 3376 feet. The terminal circle, whose longest diameter is 300 feet, is somewhat difficult to make out, as it is broken by the houses and gardens of a little hamlet. Further to the north-east there is another system at Kermario (Place of the Dead), which consists of 994 stones, many of them of great size—some, for example, 18 feet in height—arranged in ten lines and extending about 4000 feet in length. Still further in the same direction is a third system at Kerlescant (Place of Burning), composed of 266 stones, which are distributed into thirteen lines,

terminated by an irregular circle, and altogether extend over a distance of 1000 feet or more. A fourth system at Menec Vihan, due east of the village of Carnac, has 125 stones. The alignment of Kermario points to the dolmen of Kercado (Place of St. Cado), where there is also a barrow, explored in 1863; and to the east of Menec stands the great tumulus of Mont St. Michel, which measures 317 feet in length and 192 feet in width at the base, and has at present a height of 33 feet. The tumulus, which is crowned with a chapel, was excavated by René Galles in 1862; and the contents of the sepulchral chamber, which include several jade and fibrolite axes, are preserved in the museum at Vannes. About a mile east of the village is a small piece of moorland called the Boceno, from the *bocenieu* or mounds with which it is covered; and here, in 1874, the explorations of Cleuziou and Miln brought to light what they suppose to be the remains of a Gallo-Roman town. The tradition of Carnac is that there was once a convent of the Templars or Red Knights on the spot; but this it seems is not supported by history. Similar traces were also discovered at Mané Bras, a height about three miles to the east. The rocks of which these various monuments are composed is the ordinary granite of the district, and most of them present a strange appearance from their coating of white lichens.

CARNARVON, COUNTY OF, (Welsh *Caer-yn-arfon*), a maritime county of North Wales, is bounded on the N. by Beaumaris Bay, on the E. by Denbigh, on the S. E. by Merioneth; on the S. W. by Cardigan Bay, and on the W. by the Irish Sea and the Menai Strait. There is a small detached portion of the county on the N. coast of Denbighshire. The greatest length of this county is from north-east to south-west, and measures about 55 miles; while its greatest breadth from south-east to northwest is about 23 miles. Pop., 110,000.

Carnarvon is rich in mineral treasures; for, besides lead and copper lodes and an appreciable amount of gold, its numerous slate quarries are amongst the most valuable mineral properties in the United Kingdom, and yield princely incomes to the fortunate possessors, besides furnishing employment to many thousands of workmen.

Carnarvon is the most mountainous of all the Welsh counties, and its mountains are the grandest of any in the British islands south of the forth.

Some of the valleys are characterized by the extreme of wild and rugged grandeur, being walled in by the naked rocks, and traversed by foaming torrents; while others are marked by soft and smiling beauty.

The lakes are very numerous and some of them of considerable size.

The climate is cold and severe during the winter, except in the peninsular part of the county and on the sea-coast, where it is very mild.

Copper, lead, and slate are worked very largely, particularly the last, which is of the most valuable quality. For roofing, paving, and ornamental purposes it is exported in large quantities. In 1871, 4370 men were employed in the slate quarries. The chief owners are Lord Penrhyn, Mr. Duff Smith, and the Welsh Slate Company.

CARNARVON, the capital of the above county, a parliamentary and municipal borough, occupies an area of 1897 acres, and is pleasantly situated on the eastern shore of Carnarvon Bay, in the Irish Sea, at the mouth of the Seoint, 210 miles from London. Pop., 10,000.

CARNATIC, a large district of Southern India, now included in the presidency of Madras. Though no longer recognized as a political or administrative division, it is of great historic importance. The population of this region consists chiefly of Brahmanical Hindus, the Ma-

hometans being but thinly scattered over the country. The Brahmans rent a great proportion of the land, and also fill different offices in the collection of the revenue and the administration of justice. Throughout the country they appropriate to themselves a particular quarter in every town, generally the strongest part of it. The country in former times was the scene of unremitting violence and strife between the numerous chieftains and petty potentates, among whom it was divided; and forts and fortresses accordingly crown almost all the elevated points.

In the early centuries of the Christian era, the Carnatic or Carnata seems to have been formed part of the Panja or Pandion kingdom; but about the middle of the 11th century it passed under the power of the Belalas, a family of Rajput race, which at that time was making itself supreme in Southern India. Of the greatness of this dynasty the ruins of Bisnagar, their capital, still gives striking witness; but it succumbed before the mightier Mahometan potentates.

The Carnatic was first invaded by this new power in 1301 A.D., when they defeated the Hindu sovereign and conquered the country, which, after being divided between the kingdoms of Bijapore and Golconda, became ultimately tributary to the sovereigns of the Deccan. In the 17th century it was overrun by the armies of Aurungzebe; but it was again dismembered from the Mongol empire in 1717, when Nizam ul-Mulk obtained possession of the Deccan and the south of India. In 1743 he appointed Anwar ud-Deen nabob of the Carnatic, with his capital at Arcot; in 1754 a competition for the government arose; and after a long and tedious war, in which the English and the French took different sides, Mahomet Ali was left in possession of that portion of the Carnatic which was the fruit of the successes achieved by the British. Central Carnatic was laid completely waste by Hyder Ali, but was again reconquered by the British in 1783. In 1801 all the possessions of the nabob of the Carnatic were transferred to the British by a treaty, the conditions of which were, that a revenue of several lacs of pagodas should be reserved to the nabob annually, and that the British should undertake to support a sufficient civil and military force for the protection of the country and the collection of the revenue. On the death of the nabob in 1853 it was determined to put an end to the nominal sovereignty, a liberal establishment being provided for the family.

The Southern Carnatic, when it came into the possession of the British, was occupied by military chieftains called polygars, who ruled over the country, and held lands by doubtful tenures.

CARNATION, a double-flowering variety of the Clove Pink (*Dianthus caryophyllus*, see PINK). Carnations are propagated in summer either by layers or by *pipings*, which are short cuttings of shoots that have not yet flowered, each having two joints.

CARNEADES, a Greek philosopher, founder of the Third or New Academy, was born at Cyrene about 213 B.C. Little is known of his life. He learned dialectics under Diogenes the Stoic, and under Hegesimus, the third leader of the Academy in descent from Arcesilaus. The chief objects of his study, however, were the works of Chrysippus, opposition to whose views is the main-spring of his philosophy. "If Chrysippus had not been, I had not been either," he is reported to have said on one occasion. The most notable incident in his life was the embassy to Rome in 156. His eloquence and powerful reasoning excited among the Roman youth an enthusiasm for philosophical speculations, and roused the ire of Cato, who insisted on Carneades, with his companions, being sent from the city. According to Dioge-

nes Laertius, Carneades, died in his eighty-fifth year, *i.e.*, in 129 B. C.; according to Cicero he survived to the age of ninety.

CARNELIAN, or CORNELIAN, in Mineralogy, the name given to some of the finer varieties of Chalcedony. The color is blood-red or flesh-color, reddish brown, reddish white, yellow, or milk white. The finest specimens are brought from the East, but it is found in Scotland and in many parts of Europe and America.

CARNIOLA (in German, *Krain*), a duchy and crown land of the Austrian empire, bounded on the N. by Carinthia, on the N.E. by Styria, S.E. and S. by Croatia, and W. by Trieste, Görz, and Istria. It has an area of 3857 English square miles, and the civil population amounted to 463,273. It is occupied in the N. by the southern slopes and offshoots of the Carinthian Alps, in the W. by the Julian Alps and the Karst or Carso Mountains, and on the S.E. frontier by the Uskokan Mountains. The highest point is the Terglou, which rises to nearly 10,000 feet, and bears on its northern declivity the only glacier in the duchy. No part of Europe presents a greater number of caves, subterranean streams, funnels, and similar phenomena; and the grottoes of Adelsberg, especially, are among the most extensive and interesting in the world. The principal river of the duchy is the Save, which rises in the N.W. corner, and flows south-east; its main source is in the Wochein Lake, and its more important tributaries are the Gurk, the Kanker, and the Leibnitz. The climate is rather severe, and the soil comparatively unproductive. The country is rich in mineral wealth.

CARNIVAL. This word is probably most commonly written in English as it is here given; but it is extremely difficult to say what is the most correct orthography. Of course for the solution of any doubt upon the subject we turn immediately to the Italian vocabularies and practice. But on doing so we find ourselves at the beginning not at the end of our difficulty. Fanfani, whose dictionary is constructed on the basis of the Della Crusca vocabulary, gives only "Carnevale." Moroni also in his ecclesiastical dictionary gives both "Carnevale" and "Carnovale." Boiste, following the "Académie," gives "Carnaval," as the French form. Facciolati in his appendix of low Latin terms gives only *Carnisprivium*. Our mode of writing "Carnival" would seem, therefore, to be the only possible way of spelling the word which is unsupported by the authority of other languages; yet, if that which seems to be the most obvious, and is the most generally accepted meaning and derivation of the word, be the correct one, "Carnival" is surely the most natural form of a word intended to express "farewell to flesh-meat," — *Carri-vale*. But there are sufficiently strong reasons for doubting whether such be really the etymology of the word. And the generally received notion seems to have naturally suggested itself to those who, understanding the term in its modern, popular, and specially non-Italian meaning, to signify the few last days of licence and feasting immediately preceding Lent, have supposed that this feasting was meant as a sort of valedictory consolation for the privations about to follow. But such is not the proper meaning of the term, and it is hardly yet popularly so understood in Italy. It is still very commonly taken there to signify the whole of the time from the first day of the year to Shrove Tuesday inclusive. But neither is this accurately correct. Carnival time properly begins with the day following the festival of the Epiphany, that is the 7th of January, and lasts till midnight on Shrove Tuesday. Now, although it may be natural enough for those who consider "Carnival" to mean the three or four days of revelry which immediately precede Lent to imagine that such revelry

celebrates their coming forty days of abstinence, it is hardly likely that a season of the year beginning between two and three months before such "farewell to flesh" should be named from that circumstance. The Della Cruscans, with Du Cange and Muratori, suppose the word to be derived from *Carnavallare* (*avallare*, Ital. to swallow), from the greater quantity of flesh-meat used at that time of the year. Ferrario, on the other hand, maintains that the word was originally merely the same with "Carnalia," indicating an origin much earlier than any ecclesiastical observance, and used in the same way as "Saturnalia," "Liberalia," &c.

And, in fact, whatever may have been the origin of the word, there can be little doubt that the origin of the thing dates from ante-Christian times. The Bacchanalian festivals of antiquity were celebrated by the Romans, who adopted them from older nations, twice in the year, indicating the early connection of those rites with the phenomena of the solar system, in the winter and in the summer. And the primitive church, finding it, doubtless, impossible to suppress, as it would fain have done, those popular revels, adopted its usual policy of at least fitting them in to its system, and assigning to them a meaning connected with its own practises and observances. The Lupercalian festival in honor of Pan and Ceres, observed in February (which Pope Gelasius I., who died in 496, strove to supersede by substituting for them the festival of the Purification of the Blessed Virgin, with special illumination of candles on the altar *Candlemass*) — also coincided with the period of carnival, as did also (at a little earlier period of the year) the mediæval celebration of the Festival of Fools, equally a survival of the same old Pagan midwinter revelling. Specially the use of masks and torches can be traced as the continuation of ancient practises.

The spirit of compromise, which has so generally characterized the dealings of the church with "the world" is very notable in its attitude towards the popular observances of carnival; and more especially so, as needs must have been the case, in those cities in which the Pope was temporal ruler as well as spiritual pastor. For many generations past these carnival gala doings, especially at Rome, were recognized as an important element in the material prosperity of the city. They were good for trade. They induced large numbers of people, foreigners and provincials, to throng to Rome. The Government of the popes, accordingly, not only looked leniently on carnival excesses, but took active steps to promote and assist the revelry.

The Roman Carnival is recorded by several contemporary writers of records and diaries to have been especially splendid during the papacy of the great Farnese Pope Paul III., 1534-1549, — days when Rome was still overflowing with wealth sent thither by all tributary Christendom. And the year 1545 is mentioned by several chroniclers as having been marked by special magnificence. The carnival sports seem at that time to have consisted mainly of three divisions, the races in the Corso (which, formerly called the Via Lata, took its present name from them), and the spectacular pageants of the "Agona," now the Piazza Navona, and of the Testaccio. The races seem to have taken place on each of the eight days which were then held to constitute the period devoted to holiday-making. These races seem to have prevailed in one form or another from time immemorial; and before they were run in the Corso, as at present, took place in the open space in the neighborhood of the Porta St. Sebastino, not far from the present Protestant cemetery. It was in the time of Paul II. (ob. 1471) that they were moved to the Corso. The Piazza del Popolo, which now forms

the starting-place, was not then in existence. The races started from the Arch of Domitian, in the immediate vicinity of the Palazzo Fiano, and terminated in the Piazza di Venezia, so named from the huge palace, now the property of Austria, which the Venetian Pope Paul II. (Barbò) had just built. "In these races," says the writer in Moroni's *Dizionario*, "ran, during the eight days of carnival, old and young, boys, Jews, horses, asses, and buffaloes, the prizes consisting in a certain flag or banner called *palio*." The institution of these races as they existed subsequently, and still exist to the present day, belong to a subsequent period. The principal feature of the carnival, however, in the days we are speaking of, consisted in the so-called sports, "giuochi," of the Agona and the Monte Testaccio. The former seem to have consisted of little more than one of those colossal processions of which that age was so fond.

Church writers may represent the excesses of carnival as abhorrent to the church, and may point to the various ordinances of mortification and repentance which she has appointed as a means for atoning for the guilt then contracted by the city, but nothing is more certain than that many of the popes were great patrons and promoters of carnival keeping. Paul II., the Venetian Barbò, was one of the most notable in this respect. In his time the Jews of Rome were compelled to pay yearly a sum of 1130 golden florins (the thirty being added as a special memorial of Judas and the thirty pieces of silver), which was expended on the carnival.

The later Popes for the most part restricted the public festivities of the carnival to the last six or seven days immediately preceding Ash Wednesday. The municipal authorities of the city, on whom the regulation of such matters now depend, allow ten days. The public are not, however, permitted to do all the things which are understood to constitute the celebration of carnival on all these days indifferently. Some days are appointed for a "gala corso," *i.e.*, a processional driving up and down the Corso of all those who chose to take part in it, with the handsomest carriages and the finest liveries and horses, &c., they can compass; and on these days consecrated to finery and ostentation nothing save flowers is permitted to be thrown, either from the balconies and windows to the carriages, or *vice versa*. Other days are set apart for the throwing of "confetti," as they are termed, little round pellets about the size of a pea made of plaster, and manufactured and sold in enormous quantities. These confetti are supposed to represent comfits, which tradition declares to have been the only things thrown in the olden time before the spirit of carnival was, as is supposed, spoiled and vulgarized by the influx of strangers from the north. But the flinging of dust, flour, and disagreeable things of all sorts had to be repressed at a very early time. At the present day the principal fun seems to consist in flinging down bushels on bushels of these plaster confetti on the passers in the streets, mainly in the Corso, from the balconies, and in the return fire of these from the cars which pass up and down the Corso. These cars are huge machines, of which a large waggon forms the basis, built up sometimes in the form of a ship, or a castle, or other such device, and made gay-looking with garlands and abundant bright colored calico. Some dozen or so of young men, generally in uniform fancy dresses, stand on these machines, and work hard at returning, with such best vigor and activity as they may, the pelting they endure from the balconies. The ladies are mainly the occupants of these. All are masked; those who are prudent wear masks of wire gauze, for a handful of these confetti vigorously and dexterously thrown point blank into the

face is not an attack to be despised. Meanwhile everybody shrieks at the top of his voice, the masks affect a counterfeit and high falsetto note, with which they invariably address the unmasked and each other. Then at a given signal begins the running of the *barbèri*, or riderless horses. Some ten of them are led to the starting place in the Piazza del Popolo, with loosely hanging little spiked machines, contrived to act as spurs, hanging to their sides, and crackers attached to them, which are fired at the moment of starting. A gun gives the signal for the compact crowd in the Corso to make a lane for the horses to run through.

By the aid of the police and soldiers this is more or less satisfactorily accomplished, and the horses dash through it, the crowd closing behind them as they run. Rarely, or perhaps it would be more accurate to say never, does a Carnival pass without two or three accidents, frequently fatal ones, in consequence of incautious persons getting knocked down by the rushing horses. The race is run in about two minutes. The winning "post" is a sheet hung across the street at the spot hence called *Ripresa dei Barberi*, in the Piazza di Venezia. The prizes consist, as in olden time, of certain standards of velvet, gold lace, and the like, called "*palio*," which are after the race paraded through the Corso. In these days sums of money, 300 or 400 francs, are usually added by the municipality. The price of these prizes was formerly furnished by the Jews, as has been seen. And popular tradition says that the Jews were permitted to furnish the horses and prizes as a concession to humanity, in lieu of running themselves in *propria persona*. It is undoubtedly true that they were so compelled to run. But it would seem that they did not do so *exclusively*, other categories of persons, as the boys, the youths, the old men, having done the same. These races of the *barbèri* were abolished in the year 1874, but were re-established in 1876, in accordance with the wishes of a large portion of the Romans. It remains to mention the peculiar diversion of the *Moccoletti* (tapers), which take place immediately after sunset on Shrove Tuesday. Everybody in the streets, in the balconies and windows, and in the carriages, carries a taper, and everybody endeavors to extinguish the tapers of his neighbors, principally by means of flapping with handkerchiefs, and keep his own alight. All the other features of a modern carnival are common to all the principal Italian cities, but the *Moccoletti* and the *Barbèri* are peculiar to Rome. The fun ends by burning at midnight on Shrove Tuesday a colossal figure supposed to represent the carnival. These are the public and out-door aspects of carnival. But besides this all the theatres have masked balls, called *Veglioni* (from *Vigilare*, watch or keep awake, *Veglia*, a vigil, or keeping awake; the addition of the intensive termination *one* gives the word the signification of "a great keeping awake," *i.e.*, a festival to last nearly all night). In all classes of society also carnival is deemed the especial season for balls, and for festivities of all kinds.

Of the other Italian cities, besides Rome, Venice used in old times to be the principal home of carnival. But small remains of it are to be seen there now. A stage, gay with colored draperies and gas, set up by the municipality in the great square of St. Mark, on which a few masked and dominoed figures go and dance to music provided by the town, constitutes pretty well the whole of the once celebrated carnival of Venice. Turin, Milan, Florence, Naples, all put forth competing "programmes" for the carnival, all induced by the same motive, — the good of trade. Milan, Naples, and Nice are now the most active competitors with Rome in this respect. In old times Florence was conspicuous for the

licentiousness of its carnival; and the *Canti Carnas-cialeschi*, or Carnival Songs, of Lorenzo de' Medici remain still, though a somewhat rare book, to show to what extent that licence was carried.

CARNIVORA, or Flesh-eating Animals, is the name employed to designate the important order of Mammals which contains the dogs, cats, hyænas, weasels, bears, badgers and others. See MAMMALIA.

CARNOT, LAZARE NICOLAS MARGUERITE (1753-1823), was born at Nolay in Burgundy, May 13, 1753. After receiving a good mathematical education in his native province, he was admitted as an officer of the engineer corps under the patronage of the prince of Condé; and he was beginning to gain some reputation as an author by means of a prize eulogy on Vauban, two mathematical essays, and a number of verses of no great value, when the Revolution drew him into political life. In 1791 he was returned to the National Assembly for the Pas de Calais, and it was not long before he became a member of the Committee of Public Safety under Robespierre. He took a leading part in the most revolutionary measures; before his election he had addressed a paper to the Assembly proposing the seizure of the property of the church, and he now proposed to arm 30,000 *sans-culottes* with pikes, and to destroy all the citadels in France, and voted for the overthrow of the nobility and the execution of the king. His genius, however, was more military than political; he effected an important improvement in the discipline of the army, and his activity and spirit contributed materially to the successes of the Republic. One of his chief exploits was the victory of Wattignies, where he led in person, and headed a charge on foot. In 1794, after the fall of Robespierre, Carnot had to defend his colleagues, Collot d'Herbois and Barère, from the charge of complicity with the crimes of their leader, and himself only escaped arrest through the glory of his military services. He based his defence on the argument that no member of the Committee was to be held responsible for the deeds of any of the others, since pressure of business made it necessary to sign orders without staying to learn their contents. In 1795 he became one of the five directors of the Republic, and it was then that he projected the famous *Plan for the Invasion of England*, by landing two armies simultaneously on the coasts of Sussex and Yorkshire. But not long after he was proscribed, and compelled to take refuge in Germany. On the downfall of the Directory he returned to France, and became minister of war, but he soon resigned his office, consistently refusing to consent to the election of Napoleon as consul for life; and on the abolition of the tribunate in 1806 he retired into private life, became an active member of the Institute, and devoted himself to the pursuit of science. After the Russian campaign, believing that the independence of France depended upon the success of its emperor, he offered his services to Napoleon, and was made governor of Antwerp, which he defended till the abdication in 1814. He was still faithful to the Republic, and his revolutionary *Mémoire au Roi* did powerful service to the anti-royalist cause. On Napoleon's return from Elba, Carnot was made minister of war, but the time was passed for carrying out the vigorous measures which he proposed. On the overthrow of the empire he retired first to Warsaw, and then to Magdeburg, where he died in 1823. His son, NICOLAS LEONARD SADI, founder of the science of thermo-dynamics, was born June 1, 1796, and died August 24, 1832. Another son, LAZARE HIPPOLYTE CARNOT, was born April 6, 1801. In 1863 he entered the Corps Législatif, and the National Assembly in 1871. He was elected a Senator for life in 1875, and died March 16, 1888.

CARNUNTUM, an ancient town in Upper Pannonia, on the right bank of the Danube. It was of Celtic foundation, but became at a somewhat early period a Roman post, and was raised to the rank of a colony and municipium. For three years during his wars with the Marcomanni and Quadi it was the residence of Marcus Aurelius, and here a part of his *Meditations* was composed. The town was taken and destroyed by the German invaders in the fourth century; but it was afterward rebuilt, and continued to be a place of some importance till its final destruction in the wars against the Magyars in the Middle Ages.

CARO, ANNIBALE, poet, was born at Civita Nuova, in 1507. Caro's poetry was distinguished by very considerable ability, and particularly by the freedom and grace of its versification; indeed, he may be said to have brought the *verso sciolto* to the highest development it has reached in Italy. His prose works consist of translations from Aristotle, Cyprian, and Gregory Nazianzen. He died at Rome about 1566.

CAROB, ALGAROB, or LOCUST-TREE (*Ceratonia siliqua*), a tree of the order Leguminosæ, sub-order Cæsalpinieæ, a native of the Mediterranean countries. In size and manner of growth it resembles the apple-tree, but with abruptly pinnate dark evergreen leaves, which have two or three pairs of large oval leaflets. The locust-tree of America is quite distinct from this.

CAROL, originally a term for a dance, or for songs intermingled with dancing, came to signify festive songs, particularly such as were sung at Christmas.

CAROLAN, TURLOGH, the most famous of the modern Irish bards, was the son of John Carolan, or O'Carolan, a respectable descendant of an ancient tribe of East Breifny, a district now forming part of the counties of Meath and Westmeath. He was born at a place called Newtown, near Nobber, in the county of Meath, about the year 1670. In his eighteenth year he was seized with small-pox, and totally deprived of sight. This misfortune led to his becoming a professional bard, or itinerant minstrel. He died in 1738.

CAROLINA, NORTH AND SOUTH. SEE NORTH CAROLINA AND SOUTH CAROLINA.

CAROLINE, AMELIA AUGUSTA, wife of George IV. of Great Britain, second daughter of Charles William Ferdinand, duke of Brunswick-Wolfenbüttel, was born on the 17th May 1768. She was brought up with great strictness, and her education did not fit her well for her after station in life. In 1795 she was married to George, the Prince of Wales, who disliked her, and separated from her after the birth of a daughter in January 1796. The princess resided at Blackheath; and as she was thought to have been badly treated by her profligate husband, the sympathies of the people were strongly in her favor. About 1806 reports reflecting on her conduct were circulated so openly, that it was deemed necessary for a commission to inquire into the circumstances. The princess was acquitted of any serious fault, but various improprieties in her conduct were pointed out and censured. In 1814 she left England and traveled on the Continent, residing principally in Italy. On the accession of George in 1820, orders were given that the English ambassadors should prevent the recognition of the princess as queen at any foreign court. Her name was also formally omitted from the liturgy. These acts stirred up a strong feeling in favor of the princess among the English people generally; and she at once made arrangements for returning to England and claiming her rights. She rejected a proposal that she should receive an annuity of £50,000 a year, on condition of renouncing her title and remaining abroad. Further efforts at compromise proved unavailing; the princess arrived in England on June 6th, and one month

later a Bill to dissolve her marriage with the king on the ground of adultery was brought into the House of Lords. The trial began on the 17th August 1820, and on the 10th November the Bill, after passing the third reading, was abandoned. The public excitement had been intense; the boldness of the queen's counsel, Brougham and Denman, unparalleled; and the ministers felt that the smallness of their majority was virtual defeat. The queen was allowed to assume her title, but she was refused admittance to Westminster Hall on the coronation day, July 19, 1821. Mortification at this event seems to have hastened her death, which took place on the 7th August of the same year.

CAROLINE ISLANDS, a widely-scattered archipelago in the Pacific Ocean to the east of the Philippines and the north of New Guinea, between 3° and 11° N. lat., and 135° and 177° E. long. By the Spaniards, who lay claim to the whole, they are divided into the Western, the Central, and the Eastern Carolines.

The Western, better known as the Pelew, Pellew, or Palau Islands, have a total area of 346 square miles, and are nearly encircled by a coral reef. The principal members of the group are Babelthau, with an area of 275 miles, Coröre, Urudzapel, Jarakong or Errakong, Kiangle, Eimelius, Pellelew, and Angour or Ngaur; and the general title of Errekeltiu islands is applied to all the archipelago to the south of Babelthau. The surface is frequently well wooded and the soil fertile; and bread-fruit, cocoa-nuts, sugar-cane, arums, oranges, and bananas are grown in abundance. Cattle, sheep, and pigs have been introduced; there is a great variety of birds, and the lagoons abound with turtle and fish. The inhabitants are a dark, copper-colored race, and bear evident traces of Malay and Papuan blood. Not only the separate islands, but even the villages, form independent but co-operative republics.

The Central Carolines, or those which are more usually known as the Carolines proper, consist of about 48 groups, with 400 or 500 islands.

CARORA, a well built town of Venezuela, in the province of Barquisimeto, 94 miles S.S.W. of the town of Coro, on the river Moreva or Tocuyo. It carries on a considerable trade in aromatic balsams, gums, cochineal, agricultural productions, cattle, and mules. Before the wars of independence it contained about 9000 or 10,000 inhabitants, and at present it numbers about 6000. Its foundation dates from 1752.

CAROTID ARTERY, the great artery which on each side distributes blood to the different parts of the head, appears to have derived its Greek name *carotis* from Gr. *karos*, "sleep," there being an old idea that deep sleep was caused by the increased flow of blood through the carotids.

CAROUGE, a town of Switzerland, in the canton of Geneva, and about two miles south of that city, with which it is connected by a horse-railway. Pop., 7,000.

CARP (*Cyprinus carpio*), a fish, in the physostomatous division, and type of the family Cyprinidæ. The body is wholly or partially covered with scales; the head naked; the mouth toothless, but there are teeth in the throat; the dorsal fin is long, the anal short; the hind fins lie about the middle of the ventral surface. The back is blackish gray or brown, the sides yellowish brown, the belly yellow. The usual length is between one and two feet, but it has been known to attain a length of five feet. The carp is mainly vegetarian, but also eats larvæ and worms. A single ovary of a moderate-sized carp contains 700,000 eggs.

CARPATHIAN MOUNTAINS, or KRAPACKS, the eastern wing of the great central mountain system of Europe. They form the main watershed between the northern seas and the Black Sea. The valley of

the March divides them from the Silesian and Moravian chains; the valley of the Lower Danube, from the system of the Alps. They are almost entirely in Austrian territory.

CARPATHUS, the ancient name of the island of Scarpanto, about thirty miles southwest of Rhodes, in that part of the Mediterranean which was called, after it, the *Carpathium Mare*, or Carpathian Sea.

CARPEL (Gr. *Karpos*, fruit), in Botany, a modified leaf forming the whole or part of the gynœcium or female (ovule-bearing) organs of a flower.

CARPENTRAS, the chief town of an arrondissement in the department of Vaucluse in France, is situated on the left bank of the Auzon, fifteen miles northeast of Avignon, with which it is connected by means of a branch railway, leaving the main line at Sorgues. It is well built, but the streets are narrow. The population in 1890 was over 8,000.

CARPENTRY, see BUILDING.

CARPET is the name applied in modern times to a woven or felted fabric, made generally of wool, which is used for covering the floors of chambers or for spreading on the ground. The term is probably connected with the Latin *tapetes*, whence also came the word tapestry, which, though now distinctively applied to hangings, was in early times not clearly distinguished from carpeting. Carpets and rugs were originally employed by Oriental nations for sitting, reclining, or devotionally kneeling upon; and when first introduced among Western communities they were also used as covers for tables and couches, or for laying before altars or chairs of state as *pedalia* or foot cloths. The processes for making tapestry hangings and carpets being the same, and the distinction of their application being vague, it was chiefly by the nature of the design that any line was, in mediæval times, drawn between the two classes.

The mention of carpets dates from a very remote period of antiquity. In Egypt they were first applied to religious purposes by the priests of Heliopolis, and were used to garnish the palaces of the Pharaohs. It was also a custom of antiquity to place them under the couches of guests at banquets. The carpets of the Homeric age were generally white or plain cloths; but they were also sometimes produced with various colors and embroidered designs. At the supper of Iphicrates, purple carpets were spread on the floor; and at the magnificent banquet of Ptolemy Philadelphus (an account of which is given by Callixenus of Rhodes) we learn that underneath 200 golden couches "were strewed purple carpets of the finest wool, with the carpet pattern on both sides; and there were handsomely embroidered rugs, very beautifully elaborated with figures."

Oriental carpets were first introduced into Spain by the Moors; and at a later date the Venetians imported them into Italy, and supplied Western Europe with this luxurious manufacture.

In the reign of Henry IV. the carpet manufacture appears to have been introduced from Persia into France. Colbert, the minister of Louis XIV., established the manufactory of Beauvais in 1664, which is now in the hands of the French Government, and produces very artistic specimens. A variety of these, "in Turkish, Peruvian and Chinese styles," were exhibited at London in 1851.

Carpets, as manufactured at the present day, range themselves under two classes. The first and ancient class being such as are made by knotting into the warp, tuft after tuft, the materials of the pattern; and the second consisting of those in which the pattern is woven up in the loom. To the first class belong Oriental carpets generally, as well as such as are woven at many

places throughout Europe under the name of Turkish carpets. Persia is now, as it has been from the most remote times, the recognized source of what is most truly artistic, durable and valuable in this manufacture; and, after the products of that country, those of various parts of India and Turkey are most esteemed.

Kidderminster, or Scotch Carpet.—This is called also the ingrain carpet, and is made in many parts of Scotland and the north of England, and in the United States of America. It consists of worsted warp traversed by woollen weft, and is woven in pieces about a yard wide. It is composed of two distinct webs interlaced together at one operation, and is therefore a double or two-ply carpet, similar on its two sides. In this article only two colors can with propriety be introduced, as otherwise it has a striped or mixed appearance.

The *Brussels Carpet* is a very superior texture, composed of worsted and linen, and has a rich corded appearance. The figures are raised entirely from the warp, by inserting a series of wires between the linen foundation and the superficial yarn. These wires are afterwards withdrawn, leaving a looped surface. In this manufacture there is a great waste of material, and the colors are usually limited to five, although in carpets of the best quality six colors are introduced.

Moquette or Wilton Carpets are woven in the same manner as Brussels carpets, differing only in this, that the loops are cut open into an elastic velvet pile. To effect this the wires are not circular as in the Brussels fabric, but flat, and furnished with a knife edge at the upper extremity, the sharp point of which, drawn across the yarn, cuts the pile. These carpets, which have a rich, soft appearance, besides being manufactured in many parts of England and Scotland, are also made in France.

Tapestry Carpets are manufactured by a very ingenious process which was invented and patented by Mr. Richard Whytock of Edinburgh in 1832. Not only can the pile of Brussels carpets be readily imitated by the process of Mr. Whytock, but a velvet pile can also be produced by simply cutting the loops as practised for Wilton or Moquette carpets.

CARPET-BAGGER, a term applied by Southern people, after the Civil War, to Northern men appointed to federal offices in the South, and to political adventurers from the North who tried to secure the vote of the negroes in the South. The term implied that they had no property in the district save the contents of their carpet-bags.

CARPI, a town of Italy in the province of Modena, ten miles north of that city, on a canal supplied by the Secchia. Population, 25,000.

CARPI, GIROLAMO DA (1501–56), a historical and portrait painter, born at Ferrara, was one of Benvenuto Garofalo's best pupils. Becoming infatuated with the work of Antonio Leti, called Correggio, he quitted Ferrara, and spent several years in copying that master's paintings at Parma, Modena, and elsewhere, succeeding in aping his mannerisms so well as to be able to dispose of his own works as originals by Correggio. It is probable that not a few pictures yet attributed to the great painter are in reality the work of his parasite.

CARPI, UGO DA (died 1536), a painter, was long held the inventor of the art of painting in chiaroscuro, afterward brought to such perfection by Parmegiano and by Baltasar Perruzzi of Siena. The researches of Huber and Breikopf have proved, however, that this art was known and practiced in Germany by Jan Uleich Pilguin and Mair, at least as early as 1499, while the date of the oldest of Da Carpi's prints is 1518. Printing in chiaroscuro is performed by using several blocks.

CARPINI, JOANNES DE PLANO, author of a remark-

able mediæval work on Northern Asia. He appears to have been a native of Umbria, where a place formerly called Pian del Carpine, but now Piano della Magione, stands near Perugia, on the road to Cortona. He was one of the companions and disciples of his countryman St. Francis of Assisi, and from sundry indications can hardly have been younger than the latter, born in 1182. John bore a high repute in the order, and took a foremost part in the propagation of its teaching in Northern Europe, holding successively the offices of warden (*custos*) in Saxony, and of provincial (*minister*) of Germany, and afterwards of Spain, perhaps of Barbary, and of Cologne. He was in the last post at the time of the great Mongol invasion of Eastern Europe and of the disastrous battle of Liegnitz (April 12, 1241), which threatened to cast European Christendom beneath the feet of barbarous hordes. The dread of the Tartars was, however, still on men's minds four years later, when Pope Innocent IV. determined (1245) on sending a mission to the Tartar and other Asiatic princes, the real object of which apparently was to gain trustworthy information regarding the hordes and their purposes.

At the head of this mission the Pope placed Friar John, at this time certainly not far from 65 years of age, and to his discretion nearly everything in the accomplishment of the mission seems to have been left. The legate started from Lyons, where the Pope then resided, on Easter Day (16th April 1245), accompanied by another friar, who speedily broke down and was left behind. After seeking the counsel of an old friend, Wenceslaus, king of Bohemia, he was joined at Breslau by another minorite, F. Bennett the Pole, appointed to act as interpreter. The onward journey lay by Kiev; the Tartar posts were entered at Kaniev, and thence the route ran across the Dnieper (*Neper*) and the Don to the *Ethil* or Volga, on which stood the *Ordu* or camp of Batu, at this time the senior of the Chinghizid family. Here the envoys with their presents had to pass between two fires before being presented to the prince. Batu ordered them to proceed onward to the court of the supreme Kaan in Mongolia, and on Easter Day once more (April 8, 1246) they started on the second and most formidable part of their journey — "so ill," writes the legate, "that we could scarcely sit a horse; and throughout all that Lent our food had been nought but millet with salt and water, and with only snow melted in a kettle for drink." Their bodies were tightly bandaged to enable them to endure the excessive fatigue of this enormous ride, which led them across the *Jaic* (now called River Ural), and then north of the Caspian and the Aral to the Jaxartes (*quidam fluvius magnus cujus nomen ignoramus*), and the Mahometan cities which then stood on its banks; then along the shores of the Dzungarian lakes and so forward, till, on the Feast of St. Mary Magdalene (22d July), at last they reached the imperial camp called *Sira Ordu* (Yellow Pavilion), near the Orkhon River, — this stout-hearted old man having thus ridden something like 3000 miles in 106 days.

Since the death of Okkodai the imperial authority had been in *interregnum*. Kuyuk, his eldest son, had now been designated to the throne; his formal election in a great *Kurultai*, or diet of the tribes, took place while the friars were at Sira Ordu, numbered among 3000 to 4000 envoys and deputies from all parts of Asia and Eastern Europe, bearing homage, tribute, and presents. They afterwards, on the 24th of August, witnessed the formal enthronement at another camp in the vicinity called the Golden Ordu, after which they were presented to the emperor.

It was not till November that they got their dismissal, bearing a letter to the Pope in Mongol, Arabic, and

Latin, which was little else than a brief imperious assertion of the Kaan's office as the scourge of God. Then commenced their long winter journey homeward; often they had to lie on the bare snow, or on the ground scraped bare of snow with the traveller's foot. They reached Kiev on the 9th of June 1247. There, and on their further journey, the Slavonian Christians welcomed them as risen from the dead, with festive hospitality. Crossing the Rhine at Cologne, they found the Pope still at Lyons, and there delivered their report and the Kaan's letter.

Not long afterwards Friar John was rewarded with the archbishopric of Antivari in Dalmatia, and was sent as legate to St. Louis. We do not know the year of his death, but it would seem that his *successor* in the see died before April 1253; hence it is probable that John did not long survive the hardships of his journey.

CARPOCRATES, a Gnostic of the 2d century, about whose life and opinions comparatively little is known. He is said to have been a native of Alexandria and by birth a Jew. His family, however, seem to have been converted to Christianity. His Gnostic theory was for the most part founded upon Platonism, and he made especial use of the doctrines of reminiscence and pre-existence of souls.

CARPZOV (in Latin *Carpzovius*), the name of a family, many of whose members attained distinction in Saxony in the 17th and 18th centuries as jurists, theologians, and statesmen. They traced their origin to Simon Carpzov, who was burgomaster of Brandenburg in the middle of the 16th century, and who left two sons, Joachim and Benedict.

BENEDICT CARPZOV (1565-1624), first of this name, second son of Simon, was an eminent jurist. He was born in Brandenburg in 1565, and was educated at the universities of Frankfort and Wittenberg and other German schools. He returned home in 1590, and was soon after nominated assessor in law. In 1595 he was appointed professor of law at Wittenberg, whence he removed in 1602 to the court of Sophia, electress of Saxony, at Colditz, who named him her chancellor. After some years he returned to Wittenberg, and died there, November 26, 1624, leaving five sons. He published a collection of writings entitled *Disputationes juridicæ*.

BENEDICT CARPZOV (1595-1666), second of the name, was the second son of the preceding, and like him was a great lawyer.

AUGUST CARPZOV (1612-83), fourth son of the first Benedict, distinguished himself as a diplomatist.

JOHANN BENEDICT CARPZOV (1607-57), fifth son of the first Benedict, was born at Rochlitz in 1607, became professor of theology at Leipsic, made himself known by a *Systema Theologicum*, in two volumes, and died at Leipsic, October 22, 1657, leaving five sons, all of whom attained some literary eminence.

JOHANN GOTTLÖB CARPZOV (1679-1767), grandson of the preceding, was born at Dresden in 1679. He was educated at Wittenberg, Leipsic, and Altdorf, became a learned theologian, and in 1719 was called to the chair of Oriental languages at Leipsic.

JOHANN BENEDICT CARPZOV (1720-1803), grandson of the first Johann Benedict, was a distinguished classical scholar.

CARRAGEEN, often called CARRAGEEN MOSS, or IRISH MOSS, the Irish name of *Chondrus crispus*, and some other allied species of seaweeds. The true carrageen is *Chondrus crispus* (order Florideæ, family Gigartineæ.)

CARRANZA, BARTOLETE DE (1503-76), a Spanish primate and theologian, was born of noble family at Miranda in Navarre, in 1503. He studied at the University of Alcalá, and entered the Dominican order.

The only Spaniard who could pretend to rival him in learning was Melchior Canus, and as professor of theology at Valladolid he gained so brilliant a reputation that students flocked thither from all parts of Spain to hear him. Charles V. selected him as envoy to the Council of Trent (1546). At this council he earnestly maintained that it was the duty of priests to reside in their benefices; and next year he (1547) followed up this appeal by publishing at Venice *De necessaria residentia episcoporum et aliorum pastorum*. He was also chosen by Charles to accompany to England the prince who afterwards became Philip II., on the visit which he made for the purpose of marrying Mary. Carranza became that queen's confessor, and labored very zealously for the re-establishment of Roman Catholicism. In 1557 Philip appointed him to the archbishopric of Toledo, a post he was very reluctant to accept, as he foresaw the jealousy which his promotion would arouse; and indeed the bishop of Lérida the very next year denounced him to the Inquisition as a heretic, taking as pretext his *Commentarios sobre el catechismo Christiano*, published that year at Antwerp, though that book was approved by a commission of the Council of Trent. It was placed in the *Index Expurgatorius*, and Carranza was imprisoned for eight years, after which, on appealing to Rome, he was taken thither and confined (1566-1576) in the castle of St. Angelo. In 1576 he received final sentence, being made to abjure opinions which he had never held, suspended from his bishopric for five years, and banished to the Dominican convent of Minerva. Seven days after this judgment he died.

CARRARA, a town of Italy, in the province of Massa-Carrara, about 62 miles north-west of Florence, is situated not far from the coast of the Mediterranean, in a deep valley watered by the Avenza. The town owes its whole importance, as well as its very name, to the quarries in the neighboring mountains, which from a very early period have been one of the principal sources of statuary marble in the world. They are for the most part situated close to the village of Torano, about a mile distant from the town. Of the 450 quarries at present in full working order, the best are those known as Canal Grande, Poggio, Donzio, and Palvaccio. The excavation gives employment to about 6000 men; and nearly 4000 are engaged in the cutting and polishing shops, which number about 115.

CARREL, ARMAND, or more fully JEAN BAPTISTE NICOLAS ARMAND (1800-1836), a distinguished French publicist, was born at Rouen, 8th May 1800. His father was a merchant in good circumstances, and he received a liberal education at the college of his native town, afterwards attending the military school at St. Cyr. He had an intense admiration for the great generals of Napoleon, and his uncompromising spirit and bold uprightness soon marked him out as a man of independent views, and to be suspected. Entering the army as sub-lieutenant he took a secret but active part in the unsuccessful conspiracy of Belfort. On the outbreak of war with Spain in 1822, Carrel, whose sympathies were altogether with the Spanish cause, sent in his resignation and succeeded in effecting his escape to Barcelona. He enrolled himself in the foreign legion and fought gallantly against his former comrades. Near Figuières the legion was compelled to surrender, and Carrel became the prisoner of his old general, Damas. There was considerable difficulty about the terms of capitulation, and one council of war condemned Carrel to death. Fortunately some informality prevented the sentence being executed, and he was soon afterwards acquitted and set at liberty.

His career as a soldier being then finally closed, Carrel resolved to devote himself to literature. He came

to Paris and began as secretary to Augustin Thierry, the celebrated historian. His services were found to be of great value, and on his side he not only obtained admirable training in habits of composition, but was led to investigate for himself some of the most interesting portions of English history. His first work of importance (he had already written one or two historical abstracts) was the *History of the Counter-Revolution in England*, an exceedingly able political study of the events which culminated in the Revolution of 1688. He gradually became known as a skilful writer in various periodicals; but it was not till he formed his connection with the *National* that he became a power in France. The *National* was at first conducted by Thiers, Mignet, and Carrel in conjunction; but after the revolution of July, Thiers and Mignet assumed office, and the whole management fell into the hands of Carrel. Under his direction the journal became the first political organ in Paris. His judgment was unusually clear, his principles solid and well founded, his sincerity and honesty beyond question; and to these qualities he united an admirable style, lucid, precise, and well balanced. As the defender of democracy he had frequently to face serious dangers. He was once in Ste. Pelagie, and several times before the tribunal to answer for his journal. Nor was he in less danger from private enmities. Before his last fatal encounter he was twice engaged in duels with editors of rival papers. The dispute which led to the duel with M. Émile de Girardin was one of small moment, and might have been amicably arranged had it not been for some slight obstinacy on Carrel's part. The meeting took place on the morning of the 22d May 1836. De Girardin was wounded in the shoulder, Carrel in the abdomen. The wound was at once seen to be dangerous, and Carrel was conveyed to the house of a friend, where he died after two days' suffering.

CARRIAGE, a term which in its widest signification includes all structures employed for the purposes of transport of merchandise and movable goods and of human beings. Such vehicles are generally mounted on wheels, but the sledge and the litter are types of the exception to this rule. Carriages, according to the definition above given, include in these days a vast variety of forms, ranging from the humble wheel-barrow and rude farm-cart up to the luxuriously appointed sleeping-cars of railways, and the state carriages of royal personages. A narrower application, however, limits the term to such vehicles as are used for the conveyance of persons, and it is in this restricted sense that the term is here used. Cars or carriages for use on railways or tramways are also excluded, and will be dealt with in other connections.

Although, doubtless, the primitive means of transport was by riding on the back of the horse, camel, elephant, or other animal, there is evidence that the use of certain kinds of carriages dates from a very remote antiquity. When Pharaoh advanced Joseph to the second place in Egypt "he made him to ride in the second chariot which he had;" and later, Joseph, by command of the king, sent wagons out of the land of Egypt to convey Jacob and his whole family to the land of his adoption. Thus at this early period there were two distinct types of carriage in use among the civilised inhabitants of Egypt,—a country which from its level character presented facilities for the development of this species of conveyance. The use of chariots in Egypt and among early nations generally was reserved for rulers and warlike leaders.

It was among the Romans that the use of carriages as a private means of conveyance was first established, and with that people carriages attained great variety of form as well as richness of ornamentation. In all times

the employment of carriages depended greatly on the condition of the roads over which they had to be driven, and the establishment of good roads, such as the Appian Way, constructed 331 B.C., and others, greatly facilitated the development of carriage travelling among the Romans. In Rome itself, and probably also in other large towns, it was necessary to restrict travelling in carriages to a few persons of high rank, owing to the narrowness and crowded state of the streets. For the same reason the transport of goods along the streets was forbidden during the ten hours between sunrise and sunset. For long journeys and to convey large parties the *reda* and *carruca* appear to have been mostly used, but what their construction and arrangements were is not known. During the empire the carriage which appears in representations of public ceremonials is the *carpentum*. It is very slight, with two wheels, sometimes covered, and generally drawn by two horses. If a carriage had four horses they were yoked abreast, among the Greeks and Romans, not in two pairs as now.

On the introduction of the feudal system the use of carriages was for some time prohibited, as tending to render the vassals less fit for military service. Men of all grades and professions rode on horses or mules, and sometimes the monks and women on she-asses. Horseback was the general mode of travelling; and hence the members of the council, who at the diet and on other occasions were employed as ambassadors, were called *rittmeister*. In this manner also great lords made their public entry into cities.

Covered carriages were known in the beginning of the 16th century, but their use was confined to ladies of the first rank; and as it was accounted a reproach for men to ride in them, the electors and princes sometimes excused their non-attendance at meetings of the state by the plea that their health would not permit them to ride on horseback. Covered carriages were for a long time forbidden even to women; but about the end of the 15th century they began to be employed by the emperor, kings, and princes, in journeys, and afterwards on state occasions. The first time that ambassadors appeared in coaches on a public solemnity was at the imperial commission held at Erfurt in 1613. Soon after this time coaches became common all over Germany, notwithstanding various orders and admonitions to deter vassals from using them. These vehicles appear to have been of very rude construction. Carriages, however, were used at a very early period in France; for there is still extant an ordinance of Philip the Fair, issued in 1294, by which citizens' wives are prohibited from using them. It appears, however, that about 1550 there were only three carriages at Paris,—one belonging to the queen, another to Diana of Poitiers, and the third to René de Laval, a very corpulent nobleman who was unable to ride on horseback. The coaches used in the time of Henry IV. were not suspended by straps (an improvement referred to the time of Louis XIV.), though they were provided with a canopy supported by four ornamental pillars, and with curtains of stuff or leather.

When Richard II. of England, towards the end of the 14th century, was obliged to fly before his rebellious subjects, he and all his followers were on horseback, while his mother alone used a carriage. The oldest carriages used in England were known as chares, cars, chariots, caroches, and whirlicotes; but these became less fashionable when Ann, the wife of Richard II., showed the English ladies how gracefully she could ride on the side-saddle, Stow, in his *Survey of London*, remarking, "so was riding in those whirlicotes and chariots forsaken except at coronations and such

like spectacles." The same writer states that in the year 1564 Guiliam Boonen, a Dutchman, became the queen's coachman, and was the first that brought the use of coaches into England. Although Stow is incorrect in thus attributing the introduction of coaches to the time of Elizabeth, there is no doubt that at the period he indicates, the use of wheeled vehicles began to be so common that it then became a prominent public fact. "Little by little," he again states, "they became usual among the nobilitie and others of sort, and within twenty years became a great trade of coach-making." By the beginning of the 17th century the use of coaches had become so prevalent that in 1601 the attention of Parliament was drawn to the subject, and a Bill "to restrain the excessive use of coaches" was introduced, which, however, was rejected on the second reading. Their use told severely on the occupation of the Thames watermen, and Taylor the poet and waterman complained bitterly both in prose and verse against the new-fangled practice:—

"Carroaches, coaches, jades, and Flanders mares
Doe rob us of our shares, our wares, our fares.
Against the ground we stand and knock our heels,
Whilst all our profit runs away on wheelles."

The sneers of wits and watermen notwithstanding, coaches became so common that in the early part of the 17th century they were estimated to number more than 6000 in London and its surrounding country.

Vehicles plying for public convenience, we have seen, were in existence during the period of the Roman empire, and concurrently with the renewal of carriage locomotion in the 16th century, public carriages were again re-established. Hackney coaches were first introduced in France during the minority of Louis XIV. by one Nicolas Sauvage, who lived at the sign of St. Fiacre in the Rue St. Martin, and hence hired carriages came to be called *fiacres*, though eventually the name was restricted to such as were stationed for hire in the streets. In 1650 Charles Villerme obtained the exclusive privilege of hiring out *fiacres* in Paris for a payment of 5000 livres. The prototype of the modern omnibus first commenced plying in the streets of Paris on the 18th March 1662, going at fixed hours, at a stated fare of five sous. Soldiers, lackeys, pages, and livery servants were forbidden to enter such conveyances, which were announced to be *pour la plus grand commodité et liberté des personnes de merite*. In the time of Charles X. the omnibus system in reality was established; for no exclusion of any class or condition of person who tendered the proper fare was permitted in the vehicles then put on various routes, and the fact of the carriages being thus at the service of all gave rise to the present name.

Hackney coaches were first established in London in 1625.

Modern Carriages.—The forms of carriages as now built are so numerous as almost to defy classification, and they altogether baffle detailed description. The climate, conditions of life, and various other circumstances of different countries have originated modified forms of carriage in each of them, some of which have come into general use, while others are seldom seen out of the land of their origin.

In comparing the carriages of the present day with those of earlier periods it should be borne in mind that many circumstances apart from the skill and invention of the coach-builder have combined to modify, or to necessitate the modification, of such structures. The condition of streets and roads was such, at no very remote date, as to permit of only the most cautious traffic within limited areas in vehicles of great strength, solidity, and weight. The paving of streets and mac-

adamization of highways gave designers of carriages facilities for planning vehicles of a light, airy type on more elegant lines, of which opportunities they were not slow to take advantage. Again, previous to the introduction of railways, not only public coaches but private carriages had to be built with a view to afford accommodation for undertaking long journeys, which are now entirely performed by railway, and that circumstance also now enables the coach-builder to give primary attention to the comfort, gracefulness, and elegance of the vehicles he constructs. But after allowance is made for all such circumstances, there remains to coach-builders, and especially to those of Great Britain, a very large share of credit, for the inventive skill and ingenuity which has brought the modern carriage to that perfection of workmanship and artistic finish which it everywhere displays. To enumerate the improvements in coach-building, which have been effected chiefly in the present century, would demand a much greater space than can be devoted to this subject. It must suffice simply to point to the Collinge axle invented in 1792, now universally adopted, by means of which wheels require oiling only once in several months. The elliptic springs, upon which nearly all carriages are now mounted, were patented by Obadiah Elliott in 1804. A great many ingenious devices have also been adopted for facilitating the opening and closing of the head of landaus or such carriages as are made to be open or close at pleasure. And generally coach-building has enjoyed a full share of the advantages flowing from the improved mechanical devices and processes of modern times.

CARRICKFERGUS, a maritime county of a town, and a co-extensive parliamentary borough of the same name, in the province of Ulster, in Ireland. It is enclosed by the county of Antrim, except on the S. where it is skirted by the Bay of Carrickfergus (Belfast Lough). It comprises an area of 16,702 acres, of which 129 are occupied by the town. Population, 8,000.

CARRICK-ON-SUIR, a town of Ireland in the south riding of the county of Tipperary, province of Munster, is situated on the Suir, 14 miles east of Clonmel, with a station on the Waterford and Limerick railway. It was formerly a walled town, and contains some very ancient buildings, such as the parish church and the castle, erected in 1309, which belongs to the Butler family. Population, 6,000.

CARRIER, in its general acceptation, is a person who conveys the goods of another for hire. In its mere colloquial use it was applied to the class of men, now rendered comparatively obsolete by the railway system, who conveyed goods in carts or wagons on the public roads. In jurisprudence, however, the term is collectively applied to all conveyers of property, whether by land or water; and in this sense the late changes and enlargements of the system of transit throughout the world have given additional importance to the subject. The law by which carriers, both by land and sea, are made responsible for the goods intrusted to them, is founded on the prætorian edict of the civil law, to which the ninth title of the fourth book of the Pandects is devoted.

A common carrier is subject at law to peculiar liabilities. He is bound to carry the goods of any person who offers to pay his hire, unless there is a good reason to the contrary, as, for example, when his carriage is full, or the article is not such as he is in the habit of conveying. He ought to carry the goods in the usual course without unnecessary deviation or delay. To make him liable there must be a due delivery of the goods to him in the known course of his business. His charge must be reasonable; and he must not give undue preference

to any customer or class of customers. The latter principle, as enforced by statute, has come to be of great importance in the law of railway companies.

CARRIER, JEAN BAPTISTE, French Revolutionist, one of the actors most infamous for cruelty in the "Reign of Terror," was born at Volai, a village near Aurillac in Upper Auvergne, in 1756. At the beginning of the Revolution (1789), he was merely an obscure attorney; and in 1792, with many others of the same class, he was chosen deputy to the National Convention. He was already known as one of the influential members of the Cordeliers Club, which with the Jacobins supported Robespierre. After the subjugation of Flanders he was one of the commissioners nominated in the close of 1792 by the Convention, and sent into that country to carry out a general spoliation of the inhabitants, which was called "organizing the progress of liberty." In the following year he took part in establishing the revolutionary tribunal, and said openly that for the prosperity of the republic at least half of its population must be "suppressed." He voted for the death of Louis XVI., was one of the first to call for the arrest of the duke of Orleans, and took a prominent part in the revolution of May 31 (overthrow of the Girondists). After a mission into Normandy, Carrier was sent, early in October 1793, to Nantes, under orders from the Convention to suppress the revolt which was raging there, by the most severe measures. Nothing loath, he established a revolutionary tribunal, and formed a body of desperate men, called the Legion of Marat, for the purpose of destroying in the swiftest way the masses of prisoners heaped together in the jails. The form of trial was soon discontinued, and the victims were sent to the guillotine or shot or cut down in the prisons *en masse*. He also had large numbers of prisoners put on board a vessel with a trap door in its bottom, and sunk in the Loire by night. The process, first of the *noyades* of Nantes, called by its inventor, "republican baptism," was twenty-five times repeated, so that the river became polluted with corpses, and a decree was issued, prohibiting the drinking of its water; and even in this wholesale slaughter of men, women, and little children, there were special aggravations. Such was the terror inspired by these deeds that for some time no one dared to denounce the perpetrator, who, in his reports to the Committee of Public Safety, deliberately lied. At length the horrible truth became known, and Carrier was recalled. He was now the object of general execration; and although, in consequence of the fall of Robespierre (9th Thermidor), he had a short respite, he was in November 1794 tried before the revolutionary tribunal. The proceedings lasted nearly a month, and on the 16th December, having vainly pleaded the orders of the Convention in his defence, he was condemned to death and executed.

CARRIER PIGEON, a fancy variety of domestic pigeon, large in size, long in body and neck, bred in several different colors. According to Darwin, the carrier is of eastern origin, and is probably a descendant of the Persian messenger pigeon. The pigeons now made use of for long-distance flying and as message-bearers are called homers, or homing Antwerps, and are very different in appearance from carriers. They are of medium size, somewhat similar to the common pigeon in appearance, but heavier, stronger, and have larger heads.

CARRIERS. In the United States carriers are treated as (1) carriers without hire; (2) carriers for hire, but not common carriers; and (3) common carriers. Those who carry without hire are held to ordinary care and diligence in performance of the undertaking; the confidence reposed in them being a sufficient consideration to create

this liability. The second class, which may be termed private carriers or bailees for hire, are held to a greater degree of responsibility; they are held to such diligence as every prudent man commonly takes of his own goods, and are responsible for that ordinary negligence which is a want of such diligence. The liability of this private carrier depends upon a difference of facts, rather than a difference of legal principles; and may be increased or diminished by a special contract, which does not, however, change his character as carrier.

A common carrier, one who undertakes to carry passengers or goods for all who apply and agree to the lawful terms he prescribes, and who is liable to an action for damages if he refuses, is an agent for the public, and as such is held to extraordinary care in the discharge of his public duty. The Inter-State Commerce Act of Congress of February 4, 1887, prohibits common carriers from discriminating in the transportation of passengers and property, between persons or places, and lays down much the same rules as regards undue preference and equal facilities as the British Act of 1856. It also prohibits charges which are not just and reasonable. It compels common carriers to print and make public "the rates, fares, and charges for transportation of passengers and property;" and forbids combinations among common carriers to prevent the carriage of freights from being continuous from the place of shipment to the place of destination.

This act created an Inter-State Commerce Commission, consisting of five members appointed by the president, by and with the advice of the senate, and clothed them with authority, with the usual powers, to inquire into the management of the business of every public carrier not confined to a single State. The act gives this commission extensive power to hear complaints and investigate the same, and to decide disputes, and to make the necessary regulations in the public interest. This law does not interfere with the legislative jurisdiction of the States within their own territory. The land traffic is generally subject to municipal law, and the Federal courts have jurisdiction by virtue of the citizenship of the parties, while the traffic by water, as a branch of the maritime and admiralty jurisdiction, is properly in the United States or Federal courts.

In the United States it has been decided that sleeping-car companies are not responsible for effects carried by their passengers. See also article on RAILWAYS, vol. VIII.

CARROLLTON, a town of Louisiana, in Jefferson parish, is situated on the Mississippi river, seven miles above New Orleans, of which it became a part in 1873.

CARROLLTON, the county seat of Carroll county, Mo., is situated on Waconda creek, near the Missouri river, and on the Wabash, St. Louis and Pacific, and Chicago, Burlington and Kansas City roads, sixty-six miles from Kansas City and 446 miles from Chicago. There are three banks in the town, and one daily, one semi-weekly, three weekly, and one semi-monthly papers are published. Besides possessing water-works and other modern appliances, Carrollton is lighted by electricity. It has eight churches, several schools and academies, a convent, court-house, hotels, and public halls. Its manufactures include flour, woolen goods, machinery, brick and tile, carriages, lumber, and other articles. The population in 1890 was 3,858.

CARRON, a small village of Scotland, in the county of Stirling and parish of Larbert, on the right bank of the Carron river, about two miles northeast of Falkirk. Population, 5,000.

CARROT (*Daucus*), a genus of Umbelliferae, containing about twenty species; mostly natives of the Mediterranean countries. The common carrot (*D.*

Carota) is a biennial plant, which ranges as far as India in the wild state, and is cultivated for the sake of its root.

CARSON CITY, the capital of Nevada and county seat of Ormsby county, lies at the eastern base of the Sierra Nevada mountains, in the midst of a country noted alike for the surpassing beauty of its scenery and the wealth of its mineral resources. The Virginia and Truckee railroad connects the city with Reno and Virginia City, while stage lines and other means of conveyance communicate with such portions of the State as are without railroad facilities. Besides the State capitol, the city contains the United States mint, the county court-house, also five churches and half a dozen hotels. It has a well-established school system, an orphan asylum and other public institutions. In addition to stamp mills and refining works, there are some manufactories, principally of lumber and lumber products, railway cars, iron, steel, flour, and soap. Three daily and three weekly papers are issued. The city is lighted by gas and electricity, provided with water-works, etc., and, from its situation in the center of what is regarded as the richest silver mining country east of the Sierra Nevada, its growth and development have been rapid and permanent. Population, 4,080.

CARSTARES, WILLIAM, a Scottish clergyman, born at Cathcart, near Glasgow, February 11, 1649. He was educated at the University of Edinburgh, and then passed over to Utrecht, where he commenced his life-long friendship with the prince of Orange, and began to take an active part in the politics of his country. On his return to England, at the close of 1674, he was committed to the Tower; the following year he was transferred to Edinburgh Castle, and it was not till August, 1679, that he was released. After this he visited Ireland, and then became pastor to a Nonconformist congregation at Cheshunt. During 1682 he was in Holland, but returned to England, and became chaplain to William and Mary. At the accession of Anne, Carstares retained his post as royal chaplain, but resided in Edinburgh. On the accession of George I., Carstares was appointed with five others, to welcome the new dynasty in the name of the Scottish Church. A few months after he was struck with apoplexy, and died December 28, 1715.

CARTAGENA, or CARTHAGENA, a fortified seaport of Spain, on the Mediterranean Sea, in the province of Murcia, and twenty-nine miles south by east of the town of that name, is in 37° 36' N. latitude and 1° W. longitude.

Cartagena was founded about the year 243 B.C. by Hasdrubal, and was called *Carthago Nova*, or New Carthage, to distinguish it from the African city of Carthage. It was conveniently situated opposite to the Carthaginian territory in Africa, and was early noted for its harbor, the best on the neighboring coast of Spain. Its silver and gold mines were the source of great wealth both to the Carthaginians and to the Romans. In 210 B.C. this important place, the headquarters and treasure city of the Punic army, was stormed and taken with great slaughter by P. Scipio. The city continued to flourish under the Romans, who made it a colony, with the name *Colonia Victrix Nova Carthago*. In 425 A.D. it was pillaged and nearly destroyed by the Goths. The modern Cartagena was a bishopric till the year 1219, when the see was removed to Murcia. It was rebuilt by Phillip II. of Spain, for the sake of its harbor. In 1706, in the war of the Spanish Succession, it was occupied by Sir John Leake; and in the next year it was retaken by the duke of Berwick. On November 5, 1823, the town capitulated to the French. In consequence of the insurrection in

Spain, Cartagena was in 1844 again the scene of warfare. On August 23, 1873, it was bombarded by the Spanish fleet under Admiral Lobos; on October 11 a battle took place off the town, between the ships of the Government and the Intransigentes, and on January 12, 1874, Cartagena was occupied by the Government troops.

CARTAGENA, or CARTHAGENA, a seaport town on the northern coast of South America, in the United States of Colombia. It is situated on a low sandy island, which, with the island south of it, Tierra Bomba, forms the harbor of Cartagena. Population, 10,000.

The town of Cartagena is the chief naval arsenal of New Granada. It was founded in 1533 by Pedro de Heredia; in 1544 it was seized by the French; it was taken in 1585 by Sir Francis Drake, and in 1697 by the French, who obtained from it over a million of money. In 1741 Vernon unsuccessfully besieged the town. It was taken by Bolivar in 1815, and surrendered to the royalists in the same year. Finally, it was captured by the republicans, September 25, 1821.

CARTAGO, an inland city of the state of Cauca, in the United States of Colombia, South America, 130 miles northwest of Bogota, and situated on the Viega, an affluent of the Cauca. Population, 8,000.

CARTE, THOMAS, an English historian, was born at Dusmoon, near Clifton, in 1686, and died in 1754.

CARTE BLANCHE, a "blank paper" authenticated with an authoritative signature, and intrusted to some one to be filled up as he may think best.

CARTEL (dim. of *carta*, paper) means variously a challenge and a written agreement between belligerents for an exchange of prisoners. Cartel ship is a vessel commissioned to convey exchanged prisoners.

CARTER, ELIZABETH, a celebrated lady scholar, and translator of the work of Epictetus, was the daughter of the Rev. Dr. Carter of Deal in Kent, was born in that town, December 16, 1717, and died in 1806.

CARTESIANISM. By Cartesianism is here meant the philosophy developed principally in the works of Descartes, Malebranche, and Spinoza. It is impossible to exhibit the full meaning of these authors except in connection, for they are ruled by one and the same thought in different stages of its evolution. It may be true that Malebranche and Spinoza were prepared, the former by the study of Augustine, the latter by the study of Jewish philosophy, to draw from Cartesian principles consequences which Descartes never anticipated. But the foreign light did not alter the picture on which it was cast, but only let it be seen more clearly. The consequences were legitimately drawn. It may be shown that they lay in the system from the first, and that they were evolved by nothing but its own imminent dialectic. At the same time it is not likely that they would ever have been brought into such clear consciousness, or expressed with such consistency, except by a philosopher whose circumstances and character had completely detached him from all the convictions and prejudices of the age. In Malebranche, Cartesianism found an interpreter whose meditative spirit was fostered by the cloister, but whose speculative boldness was restrained by the traditions of the Catholic church. In Spinoza it found one who was in spirit and position more completely isolated than any monk, who was removed from the influence of the religious as well as the secular world of his time, and who in his solitude seemed scarcely ever to hear any voice but the voice of philosophy. It is because Cartesianism found such a pure organ of expression that its development is, in some sense, complete and typical. Its principles have been carried to their ultimate result, and we have before us all the data necessary to determine their value. See DESCARTES, Vol. IV., p. 1977.

CARTHAGE was situated on the north coast of Africa, not far from the modern city of Tunis, just at that point where the coast approaches most nearly to the Island of Sicily. It lay in the heart of the Bay of Tunis, close to the mouth of the River Bagradas, and its site was so favorable to the natural development of a city that a hundred years after its entire destruction by the Romans it was chosen with Corinth as a place for colonization by Julius Cæsar, and rose into distinction as the third town in the empire. It was a colony of the Phœnicians, and was founded about the middle of the 9th century B.C., a hundred years before the foundation of Rome.

The name Cartago (the city was called Karthada by the Phœnicians, and by the Greeks) signifies New City. The inhabitants called themselves Canaanites, or inhabitants of the plain. The Romans used the name Pœni or Punici, the Latin form of *φοίνικες*, which either signifies "red men," or refers to the palms which were the chief products, and the principal emblem of the Syrian coast. We gather from this that the first knowledge of Phœnicians was gained by the Romans from the Greeks, but the name Sarranus given to Phœnician wares, and the name Carthago itself, shows us that their knowledge of the chief products of Syrian merchandise, and of the existence of their rival city, was gained independently. Carthage was the youngest Phœnician colony founded in the territory, which she afterwards subdued.

The history of ancient Carthage divides itself naturally into three periods:—the first extends from about 850 to 410 B.C., from the foundation of the city to the beginning of the wars with Syracuse; the second from 410 to 265 B.C., the beginning of the wars with Rome; the third from the commencement of the Roman (or Punic) wars till the destruction of the city, 146 B.C. It will then remain to remark the fortunes of the restored city until its destruction by the Arabs in 638 A.D. The first period of four centuries and a half contains the rise of the Carthaginian dominion and the culmination of its prosperity. Her empire was extended from the Straits of Gibraltar to the altars of the Philæni, near the Great Syrtis, where she touched on the territory of Cyrene. She possessed as provinces Sardinia, the Balearic Islands, and Malta, and a few settlements in Spain and Gaul. She had subdued the neighboring states founded from Phœnicia with the exception of Utica, and drew a large revenue from the corn lands of Byzacium and Emporia, situated on the coast south-east of the city.

The foreign conquests of Carthage were undertaken with the object of securing her commerce. Justin tells us of a king, Malchus (the Latin form of a royal title), who after successes in Africa and Sicily was defeated in Sardinia, and turned his arms against his country. He must have lived between 600 and 550 B.C. A more historical personage is his successor Mago (between 550 and 500 B.C.), said to be the founder of the military power of the Carthaginians. His sons were Hasdrubal and Hamilcar, his grandsons Hannibal, Hasdrubal, and Sappho, sons of Hasdrubal; Himilco, Hanno, and Gisco, sons of Hamilcar. By the energy of this family the Carthaginian empire was established over Sardinia, which was not lost till after the first Punic war, over the Balearic Islands and part of Sicily, and over portions of Liguria and Gaul. There are, however, few events of which the chronology is certain. The first is the sea fight between the Etruscans and Carthaginians on the one hand and the Phocæans of Aleria in Corsica on the other, which occurred in 536 B.C. The Phocæans, driven from Asia Minor by Harpagus in 564, had settled at Aleria or Alalia in Corsica, but engaged in piracy, which demanded the interference of the commercial naval powers. The Phocæans won the battle, but

with such loss that they abandoned Corsica, and settled at Velia in Italy. Polybius has preserved three treaties between Carthage and Rome, the first of which belongs to the year 509 B.C., the second probably to the period between 480 and 410 B.C. Their object is to restrict Roman commerce in Punic waters, and it is noticeable that the second treaty prescribes stricter limits than the first, and testifies to a considerable superiority of Carthage over Rome. To the period of about 500 B.C. belong the expeditions of Hanno and Himilco,—the one to found colonies on the west coast of Africa, which was probably explored as far as the mouth of the Senegal and Gambia, the other to obtain a knowledge of the Atlantic, which resulted in the discovery of Britain. But the most important event of the first period was the battle of Himera, fought between Hamilcar and Gelo of Syracuse, about the year 480 B.C. Terillus, tyrant of Himera, on the north coast of Sicily, driven out by Thero of Agrigentum, implored and obtained help from the Carthaginians. Thero was assisted by Gelo of Syracuse. An account of this battle is given by Herodotus. The forces of Hamilcar consisted of 3000 ships and 300,000 men,—Phœnicians, Libyans, Iberians, Ligurians, Helysci (perhaps Volscians), Sardinians, and Corsicans. He was defeated with great loss. For seventy years Carthage made no further effort for the subjugation of Sicily. This battle is one of the most important in ancient history. The expedition in which it terminated was undertaken in conjunction with that of the Persians against the Greeks of Attica. The nearly simultaneous defeats of Himera and Salamis decided the question whether Semitic or Aryan nations should hold the empire of the West. The only other events of any importance in this period, of which we have an account, are the more complete subjugation of the African dependencies by the family of Mago, and the settlement of the disputed boundary between Carthage and Cyrene.

The second period of 140 years (410–269 B.C.) is occupied with the attempts of Carthage to reduce Sicily to the condition of a subject province. At this time her settlements were confined to the eastern corner of the island, while on the western coast Syracuse undertook the defence of Grecian nationality, and waged the battle of Aryans against Semites, until both combatants fell before the supremacy of Rome. The repulse of the Athenians from Syracuse, and the same rivalry between Egesta and Selinus which had invited Athenian interference in the affairs of the island, induced the Carthaginians to renew an enterprise which had been interrupted for seventy years. Hannibal, son of Gisco, stormed Selinus, and avenged at Himera the death of his grandfather. Overtures of peace were rejected, and preparations made for a more vigorous attack. In 406 Hannibal and Himilco destroyed the great city of Agrigentum, overthrew the mighty columns of her temples, and covered a flourishing site with a mass of ruins. Hannibal died before Agrigentum; Himilco proceeded to attack Gela. Syracuse was now governed by Dionysius, who from an obscure position had raised himself to the rank of despot. In 405 a treaty made by Carthage secured to her the possession of her conquests, and to Dionysius a firmer position on the throne. But he no sooner felt himself secure than he hastened to drive the enemy from the island. War broke out in 398, all Sicily fell before the Punic arms, and Dionysius, driven by Himilco to take refuge within the walls of Syracuse was there besieged. Pestilence came to his assistance, and the Carthaginians were defeated; 150,000 Punic corpses lay unburied on Grecian soil; and Himilco, unable to bear the contempt of his fellow-citizens, starved himself to death. The Libyans rose in rebellion, and Carthage

was threatened by an army of 200,000 men. The attempt of Mago between 396 and 392 to procure a more favorable result had little effect. Ten years afterwards he led another expedition. The defeat of Cabala nearly lost the possession of the whole of Sicily, but the brilliant victory of Corsica restored the balance, and the Halycus was accepted as the boundary between the two peoples. Fourteen years of peace ensued. In 368 the misfortunes of Carthage encouraged Dionysius to a new but unsuccessful effort to complete the purpose of his life. His death put an end to a renewal of the attempt, and his son and successor made peace with the Carthaginians.

The third period of the Carthaginian history extends from 264 to 146 B.C.,—from the outbreak of the first war with Rome to the final annihilation of the city by the conquerors. This is not the place for a detailed account of the Punic wars, which occupy a large space in every Roman history. We must content ourselves with a hasty summary. The first war which lasted from 264 to 241 B.C., was a contest for the possession of Sicily. The Carthaginians in undertaking it felt secure in their mastery over the sea. Their ambassadors told the Romans that they could not even wash their hands in the sea without permission of the Carthaginians. Montesquieu considers it one of the chief causes of the rise of Roman greatness that they were careful to borrow from their enemies whatever was calculated to improve their own efficiency. The Romans not only built a fleet but developed a novelty of tactics which precisely secured the object which they had in view. They were encouraged to further exertion by the victories of 260 B.C. and 256 B.C., and were schooled to caution by the defeat of the following year. The war was ended by the brilliant success of Catulus in 242 B.C., and Sicily was lost to the Carthaginians. The next three years and a half (241-237) were occupied by a civil war, which shows us on what insecure foundations the powers of Carthage was based. The large army of mercenaries which had been employed against Rome was incautiously admitted into the city. Under pretense of demanding pay they rose against their employers, and were joined by the Libyans and Numidians, who cultivated the surrounding lands in unwilling subjection. The insurrection was quelled with difficulty, but a similar revolution in Sardinia was more successful; 700 Carthaginians were barbarously murdered, and the possession of the island passed to the Romans. All we know of the twenty years which elapsed before the beginning of the second war with Rome is confined to the success of Hamilcar and his family in Spain. In 218 B.C. Hannibal, who had sworn as a boy eternal enmity to the Romans, began the enterprise to which he devoted his life. His object was not so much to conquer Italian soil or Italian cities as to break up the confederacy on which the greatness of Rome depended, and to undo the fabric of its empire stone by stone. He sought, therefore, on the one hand to rouse the Greeks and Orientals to a joint attack against the common foe, and on the other hand to sow dissension amongst the Latin, Sabelian and Oscan tribes, and to urge them to reduce Rome to that position of comparative inferiority which she had occupied many centuries before. Both these plans failed. Hannibal was badly supported from home; he found that to combine in unity the shifting policy of the East was to weave a rope of sand; and he discovered above all that Roman supremacy was established on a basis of complete security. How different was her position, seated among kindred peoples bound to her by affinities of blood and language as well as interest, governed by the wise policy of a patriotic senate, and restrained by the overpowering force of devoted legions, and that of the city of merchants, torn by factions, surrounded by alien and even hostile tribes, defended by

mercenaries, and swayed by interest and passion. The defeat of Hasdrubal at the Metaurus in 207 B.C. crushed the last hope of the invader; Spain was recovered by the genius of Scipio, and in 203 B.C. Hannibal not unwillingly, obeyed the order to embark from Italy to retard the ruin of his country which it was too late to save. The battle of Zama in 202 put an end to the war in the following year. It was due to the magnanimity of Scipio and Hannibal that peace was concluded on such terms that, while Rome had no longer to fear Carthage as a rival, she was content to recognize her existence as a commercial community.

For the next six years Hannibal governed the city which he had not been able to preserve. He reformed the constitution in a democratical sense, and paid with surprising facility the enormous indemnity demanded by Rome. He was engaged in planning a combination against Rome with Antiochus of Syria, when he was driven from power, and forced to take refuge in the East. Shortly afterwards he fell a victim to Roman hatred.

The interval between 183 and 150 B.C. contains little besides the history of internal dissensions,—struggles between the Roman party, the democratical party, and the party of Masinissa, which tore the city in sunder by their quarrels. The so-called third Punic war (149-146 B.C.) is one of the saddest events in all history, and the greatest blot on the reputation of the Romans. Jealousy of their old antagonists had been shown by constant acts of injustice, and at last the sight of the prosperity and riches of the city impressed upon the narrow mind of Cato the conviction that Carthage must be blotted out. A pretext for war was wantonly invented. The anxieties of the Carthaginians to secure peace at any sacrifice was made the instrument of their destruction. When they saw that their ruin was resolved upon, and that compromise was hopeless, they defended themselves with an energy which would have saved them at an earlier period. The sentence of the senate was ruthlessly carried out. The city burned for seventeen days, and concealed its very site under a heap of ashes. The plough was passed over it, and the ground was cursed for ever. In the words of Mommsen, "where the industrious Phœnicians bustled and trafficked for five hundred years, Roman slaves henceforth pastured the herds of their distant masters."

The history of Roman Carthage must be given in a few words. In 122 B.C. Caius Gracchus led 6000 colonists to Africa, and founded the city of Junonia. The colony did not prosper. In 29 B.C. a second colony was sent out by Augustus in fulfilment of a design of Julius Cæsar. This became so prosperous that Herodian states that it disputed with Alexandria the second place in the empire. In the middle of the 5th century it became, under Genseric, the capital of the Vandal kingdom, and in 533 A.D. it was stormed by Belisarius. In 706 A.D. it was entirely destroyed by the general of the caliph Abdulmelek.

By the side of the regular Government stood a controlling power which gradually absorbed into itself all the authority of the state. The *pentarchies* were probably bodies of commissioners chosen from the principal families, who were self-elected, and so constituted that the outgoing members preserved their power for another year, and thus impressed a unity of policy on the institution. By these were elected the council of a hundred (or more strictly a hundred and four), who stood in the same relation to the suffetes as the ephors to the Spartan kings. By the gradual extension of judicial functions, like the parliaments of France, they usurped to themselves the authority of the state. To them is to be referred the cruel

vengeance so often wreaked on unsuccessful generals.

The Carthaginians were, like the Phœnicians, a deeply religious people. Religion entered into every important action of their lives, and their priests were held in the highest honor, yet there was no special order of priests, and we have no proof that the office was by law or custom confined to any particular family. Aristotle, writing more than half a century before the first Punic war, gives great praise to the Carthaginian constitution on the score of its stability, and its success in securing the happiness and contentment of the nation.

CARTHAGE, the capital of Jasper county, Mo., is situated on Spring river, and on the Missouri Pacific and St. Louis and San Francisco railroads, sixty miles from Springfield and 150 miles from Kansas City. During the Civil war Carthage was made the objective point of attack by the contending armies, and was materially damaged. At the close of hostilities, however, the city was rebuilt, and has since become one of the most attractive and enterprising cities in that part of the State. It contains four banks, a high school costing \$50,000, graded schools, court-house, ten churches, a public library, etc.; parks, hotels, public halls, and other improvements of a conspicuous character, besides manufactories of machinery, wind-mills, woolen goods, furniture, plows, etc., for which Spring river furnishes an abundant water-power, and the most extensive stone works in the State. Mines of lead, zinc and cobalt and quarries of limestone are successfully worked in the immediate vicinity. Three daily and three weekly papers and a monthly magazine are published. The city is lighted by gas and electricity, provided with efficient water and sewerage systems, street railways, etc. Population (1890), 7,962.

CARTHUSIANS, a religious order founded by St. Bruno in the year 1084 (See BRUNO.) This saint, disgusted with the world, and especially with the conduct of Manasses, archbishop of Rheims, determined to live, in some remote and retired spot, a life dedicated to contemplation and religion. With six companions he went to consult Hugh, bishop of Grenoble, who led them to a spot among the mountains, about ten or twelve miles from the town, called Chartreuse; and Bruno at once fixed upon this desolate, terrible place, shut in among naked and precipitous rocks, and half-buried by the snow, as the site of the establishment which he was minded to found.

The earliest formal approbation of the Carthusian Order is attributed to Urban II. (ob. 1099). That pontiff, who had been a disciple of Bruno, when the latter was lecturing on theology at Rheims, had sent for Bruno to Rome a few years after his retirement to Chartreuse. The saint obeyed, taking all his monks with him. The latter shortly returned to Chartreuse, under Landuino, appointed by Bruno to be their second prior; but Bruno himself refused to be made archbishop of Reggio, and finding the life of Rome insupportable to him, soon obtained the Pope's permission to accept a district of forest, in the diocese of Squillace in Calabria, given to him by Count Roger, where he founded the second house of his order. The rule and constitution of the order were frequently modified on subsequent occasions. The present rule is that which was fixed in 1578 and was corrected by a congregation of cardinals, published in 1581, and reconfirmed by Innocent XI. in 1682. According to these new statutes, observes Moroni, some of the practises as at present enjoined are more austere than in the ancient rule, since the choral service and the office used by Carthusians are peculiar to them, and are of excessive length, following in many respects the ceremonies and rites of the ancient church. By these statutes the use of linen is wholly prohibited to

them. They wear next the skin a shirt of horse-hair, bound by a cord girdle, and outside this a cossack and mantle of serge; and they sleep on a pailasse, with woollen sheets.

It is a very common error to suppose that the Carthusians are a branch or off-shoot from the great Benedictine order. It is true that the formula of their "office" or choral service is nearly the same as that used by the different orders which belong to the great Benedictine family; but there is no relationship, of parentage or other, between the Carthusians and Benedictines. The superiors of Carthusian convents are called priors, and not abbots as is the case with the Benedictine orders. Their general is the prior of the "Grande Chartreuse" near Grenoble, and resides always there, and not, as in the case of most other orders, at Rome. The order has a proctor-general who resides at Rome. Above all there is the radical difference in their mode of life,—the Benedictines being Cœnobites, the Carthusians eremitical, living each in his own separate dwelling, erected within the wall, which forms the cloister, but not even contiguous the one to the other.

The order of the Carthusians has always been one of the most respectable of the monastic bodies. It has maintained to a greater degree than most of them the spirit and qualities which presided at its foundation. Nor has it ever needed, as so many of its fellow communities, to be reformed. And although the services which it has rendered to literature cannot vie with those of the Benedictines, it has by no means been valueless to the world in this respect.

The order at one time possessed 172 monasteries, of which 75 were in France. It had also numerous establishments in England (where, as is well known, the "Charter House" near Smithfield, in London, was its principal house), Italy, Germany, and Spain. Hugh, bishop of Lincoln, canonized in 1220, was a Carthusian.

CARTIER, JACQUES, a French navigator, was born at St. Malo, in Brittany, in 1494. According to the custom of the place, even his early youth was passed upon the sea; and he was probably already acquainted with the coast of Newfoundland when he was appointed by Francis I. to the command of the two ships, which, on the 20th of April 1534, set sail from St. Malo, for the purpose of exploring the district beyond the fishing grounds. Cartier first touched at Cape Buonavista, on the east coast of Newfoundland, then passed northward along the coast, and, sailing south-west through the Straits of Belle Isle, discovered the mainland of Canada, which he claimed for France, by erecting a wooden cross with the inscription "Vive le Roy de France." Next year a second expedition was placed under his control to explore the estuary of the St. Lawrence. He penetrated as far as Hochelaga, a large fortified village at the foot of a hill, to which he gave the name of Mount Royal, and which is the site of the modern Montreal. But he did nothing more, and returned on the 16th May 1536, disgusted with the climate and with his crew weakened by scurvy, a disease then unknown in Europe. The idea of colonizing Canada was abandoned after this, till in 1540 Jean Francis de la Roche, Seigneur de Roberval, obtained permission to form a settlement. The project was carried out partly at Roberval's and partly at the king's expense; Cartier was sent out in command of five ships, in the spring of 1541; and in the autumn he arrived at the mouth of the St. Lawrence. Near the present situation of Quebec he built a fort named Charlesbourg. But the Indians, whose king he had carried off with him on his last voyage, annoyed him so much with their attacks that he determined to return to France; and though Roberval arrived off Newfoundland in June 1542, with three ships

and a colony of 200 men and women, and commanded him to turn back, he continued his homeward voyage. Whether this was his last expedition is disputed. Some say that he returned to the assistance of Roberval, in the autumn of 1543; but if this be so we know nothing more. The rest of his life was spent in his native town or at the village of Limoilon, of which he was created seigneur by his patron Francis I. He was alive in 1552; but the date of his death is not known.

CARTILAGE, or **GRISTLE**, is a firm, elastic substance, of a pearly whiteness, presenting to the unaided eye a uniform and homogeneous appearance.

CARTILAGINOUS FISHES, a designation which may be usefully restricted to that sub-class of fishes to which sharks and skates belong, and to which the technical titles of *Elasmobranchii* and *Chondropterygii* are usually applied. The primitive lancelet (*Amphioxus*), and the round-mouths, or *Cyclostomata* (Hagfish and Lamprey), are also cartilaginous, but these form classes by themselves, and in nowise deserve the title of fishes.

CARTOON (Italian, *cartone*, pasteboard), in painting, is a design drawn on thick paper or other material, which is used as a model for a large picture in fresco, oil, or tapestry. It was also formerly employed in glass and mosaic work. When cartoons are used in fresco-painting, the back of the design is covered with black-lead or other coloring matter; and, this side of the picture being applied to the wall, the artist passes over the lines of the design with a point, and thus obtains an impression. According to another method the outlines of the figures are pricked with a needle, and the cartoon, being placed against the wall, is "pounced," *i. e.*, a bag of black coloring-matter is drawn over the perforations, and the outlines are thus transferred to the wall. In fresco painting the portions of the cartoon containing figures were formerly cut out and fixed (generally in successive sections) upon the moist plaster. Their contour was then traced with a pointed instrument, and the outlines appeared lightly incised upon the plaster after the cartoon was withdrawn. In the manufacture of tapestries upon which it is wished to give a representation of the figures of cartoons, these figures are sometimes cut out, and laid behind or under the woof, to guide the operations of the artist. In this case the cartoons are colored.

Cartoons have been executed by some of the most distinguished masters; the greatest extant performances in this line of art are those of Raphael. They are seven in number, colored in distemper; and at present they adorn the South Kensington Museum in London, having been removed thereto from their proper home, the palace of Hampton Court.

Besides the cartoons of Raphael, two, to which an extraordinary celebrity in art-history attaches, were those executed in competition by Leonardo da Vinci and by Michael Angelo,—the former named *The Battle of the Standard*, and the latter *The Cartoon of Pisa*—Soldiers bathing, surprised by the approach of the enemy. Both these great works have perished, but the general design of them has been preserved. In recent times some of the most eminent designers of cartoons have been masters of the German School,—Cornelius, Kaulbach, Steinle, Fuhrich, etc.; indeed, as a general rule, these artists appear to greater advantage in their cartoons than in the completed paintings of the same compositions. The term cartoon is also applied to the full-page illustrations of the comic journals.

CARTOUCHE, the name given by Champollion to the ovals on monuments and in papyri on which the hieroglyphic characters for the names of Egyptian kings are inscribed. In architecture, cartouche signifies a

tablet, so formed as to resemble a sheet of paper or parchment, with the edges and ends rolled up.

CARTRIDGE, a cylindrical case containing the powder charge only in the case of cannon, but powder, cap, and shot, or bullet in that of small-arms; or the missile may be omitted, when it is called "blank cartridge." Those for large guns are bags usually of serge or flannel, filled with the proper weight of powder, tied around the neck, and strengthened by worsted hoops. A cartridge for breech-loading small-arms, as constructed in 1888, is a cylinder of solid brass, with a strong base, in the center of which is the fulminate.

CARTWRIGHT, EDMUND, D.D., F. R. S., inventor of the power-loom, was born at Marnham, Nottinghamshire, April 24, 1743, and educated at Wakefield grammar school. He would probably have passed an obscure life as a country clergyman had not his attention been accidentally turned in 1784 to the possibility of applying machinery to weaving. The result was that he invented the power-loom, for which he took out a patent in 1785. He died October 30, 1823.

CARTWRIGHT, JOHN, known as MAJOR CARTWRIGHT, one of the earliest and most honorable of English parliamentary reformers, was born at Marnham in Nottinghamshire, September 28, 1740. He received his education at Newark grammar school, and at Heath Academy in Yorkshire, and at the age of eighteen entered the navy. He was present, in his first year of service, at the capture of Cherbourg, and served in the following year in the action between Sir Edward Hawke and Admiral Conflans. Engaged afterward under Sir Hugh Palliser and Admiral Byron on the Newfoundland station, he was appointed to act as chief magistrate of the settlement; and the duties of this post he discharged with singular uprightness and efficiency for five years. During this period he explored the interior of the island, and discovered Lieutenant's lake. Ill health necessitated his retirement from active service for a time in 1771. When the disputes with the American colonies began, he saw clearly that the colonists had right on their side, and warmly supported their cause. At the beginning of the war he was offered the appointment of first lieutenant to the duke of Cumberland, which would have put him in line of promotion. But he declined to fight against the cause which he felt to be just, and thus renounced the prospects of advancement. In 1774 he published his first plea on behalf of the colonists, entitled *American Independence the Glory and Interest of Great Britain*. In 1776 appeared his first work on reform in Parliament, which, with the exception of Earl Stanhope's pamphlets (1774), appears to have been the earliest publication on the subject. The task of his life was thenceforth chiefly the attainment of universal suffrage and annual Parliaments. In 1778 he was an unsuccessful candidate for the representation of Nottingham; and the same year he conceived the project of a political association, which took shape in 1780 as the "Society for Constitutional Information," and which included among its members some of the most distinguished men of the day. From this society sprang the more famous "Corresponding Society." Major Cartwright was one of the witnesses on the trial of his friends, Horne Tooke, Thelwall, and Hardy, in 1794, and was himself indicted for conspiracy in 1819. He was found guilty in the following year, and was condemned to pay a fine of £100. He died in London, September 23, 1824.

CARTWRIGHT, THOMAS, a Puritan divine, was born in Hertfordshire, England, about the year 1535, and died in 1603.

CARTWRIGHT, WILLIAM, an English poet, was born at Northway near Tewkesbury, in September, 1611, and died in 1643.

CARUPANO, a seaport town of Venezuela, South America, in the province of Cumana, sixty-five miles northeast of the town of that name. It is situated on the Caribbean Sea, at the opening of two valleys, and is defended by a fort. The chief trade is in horses and mules. Population, 8,600.

CARUS, KARL GUSTAV, a German physiologist and psychologist, was born at Leipsic, on January 3, 1789, and died July 28, 1869.

CARVAHAL, TOMAS JOSE, a Spanish statesman, was born at Seville in 1753, and died in 1834.

CARVIN, a town of France, in the department of Pas-de-Calais. Population, 6,936.

CARVING. To carve is to cut, whatever the material; in strict language carving is sculpture. The name of sculpture is commonly reserved for the great masters of the art, while that of carver is given to the artists or workmen who execute subordinate decorations, *e. g.*, of architecture in marble or stone. The word is also specially applied to sculpture in ivory and its substitutes, and in wood and other soft materials.

True ivory is the tusk of the elephant, but other inferior kinds are produced by the walrus, narwhal, and hippopotamus. Long before the art of metallurgy was generally known, among the remotest pre-historic races, carvings on ivory and on reindeer horn may be mentioned in evidence of the antiquity of this kind of art. A piece of mammoth ivory with a rude engraving of a mammoth is preserved in the Museum of the Jardin des Plantes in Paris. Fragments of ivory and horn, carved with excellent representations of animals, found in caves in the Dordogne in France, may be seen in the British Museum.

Coming to historic ages we find abundant evidence of the skill of the Egyptians in ivory carving. Two daggers inlaid and ornamented with ivory, in the British Museum, are attributed to the age of Moses. In the same collection are chairs of the 16th century B.C. inlaid with ivory; two boxes in the shape of waterfowl and a small figure may perhaps be attributed to the 11th. A number of carvings in ivory and bone of these and later dates are preserved in the Egyptian galleries of the Louvre in Paris (Labarte, *Arts Industriels*, p. 186).

The Greeks made many precious objects in ivory even in the earliest times. Phidias and his successors (in the 5th century B.C.) made "chryselephantine" statues, *i. e.*, of ivory and gold, and the practice was continued, probably, down to the Christian era.

A few remains of ivory carvings found in Etruscan tombs in Italy are preserved in the British Museum; others have been collected by Signor Castellani. Roman ivories earlier than the 4th century are very rare. There are, however, in various collections in England and on the Continent carved ivory tablets, called consular diptychs, meant to fold up and to contain writing on the inside. They were used by the Roman consuls, and sometimes sent by them as presents to great personages.

Ivory carving was carried on at Constantinople during the early Middle Ages. Charlemagne did much to encourage and establish the arts in Northern Europe. Ivory book-covers carved with gospel subjects, pyxes, or small boxes for church use, caskets, horns, and other valuable objects were carved in ivory during his reign, and those of his immediate successors. They were set in gold or silver, and sometimes with precious stones. Crucifixes and images of the Virgin and the saints, made during these ages, are often graceful and beautiful examples of small sculpture. To these should be added the pastoral staves carried by bishops and abbots, and numbers of objects for secular use, such as horns, combs, caskets, hilts of arms, and the like, carved

in ivory for persons of wealth, throughout the Middle Ages. They reached their highest perfection during the 13th and 14th centuries.

Ivory carving has long been cultivated in the East. In many parts of India, Bombay especially, ivory is carved, pierced, and inlaid with great skill. The Bombay carvers borrowed this art from the Persians. The Chinese carve slabs of ivory and entire tusks with elaborate compositions of figures and landscape. They carve and pierce puzzle balls, cut one inside another out of single pieces of ivory. The skill of the Japanese is still greater. Their groups of small figures, animals, shells, insects &c., show a power of representing animal life, and a dexterity in inlaying ivory with metals and other substances probably never surpassed. If the art of both nations is somewhat grotesque, their power of hand has had but few equals in ancient or in modern times.

A modern school of ivory carving, that has become a small trade, is established at Dieppe in France. Many crucifixes and religious images are produced there of considerable merit.

Implements and furniture have been carved in wood from very ancient times. The perishable nature of the material forbids the hope of finding remains of such remote antiquity as we have in ivory, bone, and horn. It cannot be doubted, however, that the weapons and utensils of the stone age were fitted to handles of wood and bound on with thongs of hide or animal sinews. Most ethnographical collections possess paddles and weapons made by more recent races in a primitive state of knowledge and cultivation. Often these utensils are diapered over in patterns of much elegance,—those, for instance, of Mexico, New Zealand, and Polynesia.

Pausanias states that all the most ancient races carved statues out of wood, and mentions specially those of Egypt.

The Hebrews of the age of Moses seem to have been more skillful as metallurgists than as wood carvers, but under Solomon, the sanctuary of the temple was lined with cedar, and the walls elaborately carved with figures of cherubims, palm trees, and open flowers all gilt. Two cherubims 10 cubits high were carved in olive, a very durable wood. Solomon imported ebony and other rare woods for his musical instruments and furniture.

Wood was used by the Greek sculptors before the 5th century B.C., and Pausanias enumerates many statues made of different woods some of several kinds of wood extant in Greece in his time.

The Romans, who used bronze and marble for their furniture in later times, were still curious in woods, which were carved or polished and reversed for many purposes, and when of fine grain were extravagantly valued. Tacitus speaks of the rude wooden idols of the Germans.

The fact that a great part of Europe was covered with oak, pine, and other forests made the use of timber universal during the Middle Ages; many memorials remain of the skill both of constructors and carvers in oak and other woods. Churches, houses, even entire cities were of timber; many of these remain in Northern Germany, *e. g.*, in Hanover, Hildesheim, and Brunswick, in towns of Brittany and Perigord, and in Blois, Coventry, Chester, and other cities of France and England.

In the 16th century the great cities of Italy—Rome, Florence, Venice, Milan, Ferrara, Urbino, and others—abounded in richly carved gilt and inlaid furniture, chairs, wardrobes, chests—such as contained bridal trousseaux—mirror frames, caskets, even bellows. They were of walnut, cypress, cedar, ebony, and other

woods,—inlaid with ivory, agates, and ornaments of hammered silver.

The Spanish wood-carvers during this period had a just celebrity. Their religious imagery is admirably designed, true to nature, and devotional, pathetic, and tender in expression. They colored the figures up to nature, but nothing was lost in this process. The great Renaissance painters and masters of Germany practised wood-carving of great excellence.

CARVING AND GILDING being two operations which formerly were the most prominent features in the important industry of frame-making, the craftsmen who pursued the occupation were known as carvers and gilders. The terms still continue to be the recognized trade name of frame-making, although very little of the ornamentation of frame-work is now accomplished by carving, and a great deal of the so-called gilt ornament is produced without the use of gold. The trade has to do primarily with the frames of pictures, engravings, and mirrors, but many of the light decorative fittings of houses, finished in "composition" and gilt work, are also entrusted to the carver and gilder. Fashion in picture frames, like all fashions, fluctuates greatly. Mouldings of the prevailing sizes and patterns are generally manufactured in special factories, and supplied in lengths to carvers and gilders ready for use. A large proportion of such mouldings, especially those of a cheaper and inferior quality, are made in Germany. What is distinctively known as a "German" moulding is a cheap imitation of gilt work made by lacquering over the surface of a white metallic foil. German artisans are also very successful in the preparation of imitation of veneers of rosewood, mahogany, walnut, and other ornamental woods. The more expensive mouldings are either in wood (such as oak or mahogany), in veneers of any expensive ornamental wood, or real gilt.

CARY, HENRY FRANCIS, translator of Dante, and miscellaneous writer, was born at Gibraltar, December 6, 1772. He was the son of a captain in the army, and was educated at Christ church, Oxford, which he entered at the age of eighteen, having two years earlier made his appearance as an author, in a volume of *Sonnets and Odes*. In 1796 he took his master's degree, and having entered the church was presented, in the following year, to the vicarage of Abbott's Bromley in Staffordshire. This benefice he held till his death in 1844. The version of the *Inferno* was published in 1805, together with the original text. The version of the whole *Divina Commedia* did not appear till 1814.

CARY, SIR LUCIUS, second Viscount Falkland, was born at Burford, England, in 1610 or 1611, and educated at Trinity College, Dublin, his father being at that time lord-deputy of Ireland. On the eve of the Civil War he joined his royal master at York, and having raised a troop of horse, did good service at Edgehill, Oxford, and the siege of Gloucester. In the indecisive battle of Newbury (September 20, 1643) he fell fighting in the front rank of Lord Byron's regiment, with the words "Peace, Peace" upon his lips.

CARYATIDES (pl. of *Caryatis*, lit., a woman of Caryæ), a name given to female figures, in Greek architecture, when used instead of columns to support an entablature.

CARYL, JOSEPH, a learned Nonconformist clergyman, was born at London in 1602. Caryl is now remembered only for his learned but ponderous commentary on Job, originally published in twelve volumes 4to, afterward in two huge volumes folio. He died in 1673.

CARYOCAR, a genus of large trees of the sub-order Rhizobolaceæ, of Ternstroëniaceæ, all natives of Guiana and Brazil.

CARYOPHYLLACEÆ, a natural order of thalami-

floral dicotyledons, containing from 800 to 1,000 known species, mostly herbaceous plants.

CARYOPSIS, a fruit in which the seed and pericarp are inseparable. The grain or fruit of grasses, as wheat, barley, rye, maize, etc., is a caryopsis.

CARYOTA, a genus of palms, natives of the East Indies, having twice pinnate leaves.

CASABIANCA, LOUIS, a French naval officer, born about 1755, was captain of the flagship *L'Orient* in the expedition to Egypt. He was mortally wounded at the Battle of the Nile, August 1, 1798; the ship caught fire; his ten-year-old son refused to leave him, and both perished in the final explosion.

CASABLANCA (Arab. *Dar el Beïda*), a port of Morocco on the Atlantic, 162 miles southwest of Fez.

CASA, GIOVANNI DELLA (1503-56), an Italian poet, was born at Mugillo, in Tuscany, in 1503.

CASA CALENDÀ, a town of Italy, in the province of Molise and district of Larino, about eighteen miles northeast of Campobasso. Population, 6,248.

CASALE, a town of Northern Italy, in the north of the province of Alessandria. It is situated in a plain on the right bank of the Po, thirty-eight miles east from Turin, and at a height of 249 feet above sea-level. Its fortress, founded in 1590, was strengthened and improved in 1849 under the direction of General de la Marmara. The town has been frequently besieged. It was taken from the Spaniards in 1640, and forty-one years later was sold to France by the duke of Mantua. It was taken in 1695, but was recovered from the allies by the French. Since then, it has been twice retaken by the latter. Casale is the see of a bishop; and its cathedral, a Lombard structure, is said to have been founded in 742. Population, 27,514.

CASALMAGGIORE, a town of Italy in the province of Cremona, the capital of a circondario. It is situated on the left bank of the Po, and is protected from inundation by excellent embankments. Population, 5,000.

CASALPUSTERLENGO, a town of Italy, in the province of Milan, about thirty miles southeast of that city, on the River Brembiolo. Population, 6,270.

CASANOVA DE SEINGALT, GIOVANNI JACOPO, one of the most noted adventurers of the eighteenth century, was born at Venice in 1725. By turns journalist, preacher, abbé, diplomatist, he was nothing very long, except *homme à bonnes fortunes*, which profession he assiduously cultivated till the end of his days. In 1755, having returned to Venice, he was denounced to the Government as a political spy, and committed to prison. After several fruitless attempts he succeeded in establishing a communication with another prisoner, in whose company he made his escape on the night of October 31, 1756. This exploit, afterward so graphically related by him in a separate volume, and also in his *Memoirs*, gained him great celebrity. From that day he became a man of fashion, and recommenced his life of dissolute and profligate adventure. Exhibiting his effrontery and audacity at every court in Europe, he at last made his way through Germany, in which country he was presented to Frederick the Great, into France. Here he became acquainted with Rousseau, Voltaire, and many more notabilities, had interviews with Louis XV., and was almost tenderly intimate with Madame de Pompadour. Handsome, witty, and eloquent, it is not to be wondered at that such a man should have been received with open arms in the dissolute coteries of the eighteenth century. Consummate profligate and charlatan as he was, he was loaded with honors by the Italian princess, and even decorated by the Pope. It is indeed strange that a scoundrel so absolutely disreputable should have forced his way into

the courts of princes and pontiffs and should have died in the odor of sanctity, at last. He was the favorite of three king's favorites, imposed himself upon the priests as well as upon the Pompadours, was a consummate villain of the order of Count Cagliostro, and next to that most successful liar and swindler, deserves a place in history on account of his demerits.

After eighteen years' absence from his native town, he endeavored to reinstate himself in the esteem of the Venetians by a refutation of the work of Amelot de la Houssaye on the constitution of the republic; and when at last serious matters took the place of his pleasures, he became, in 1782, librarian to a German prince without a library. This prince was Count Waldstein, whom he accompanied to his chateau at Dux in Bohemia, in which place he died in 1803, after having written his *Memoirs*, a work not unlike the *Confessions* of Rousseau, but far more depraved in tone. They are the frank avowal of a godless life, notwithstanding the frequent professions of Christianity in the preface. Much as they have been overrated, a certain literary merit cannot be denied to them. They are principally interesting for the faithful pictures they give us of the morals and manners of the times.

CASAS GRANDES (*i.e.*, in Spanish, Great Houses), a town of Mexico, in the province of Chihuahua, situated on the Casas Grandes or San Miguel River, about 35 miles S. of Llanos and 150 miles N.W. of the city of Chihuahua. It is celebrated for the ruins of early Mexican buildings still extant, about half a mile from its present site. They are built of "sun-dried blocks of mud and gravel, about 22 inches thick, and of irregular length, generally about 3 feet, probably formed and dried *in situ*." The walls are in some places about 5 feet thick, and they seem to have been plastered both inside and outside. The principal edifice extends 800 feet from N. to S. and 200 E. to W.; its general outline is rectangular, and it appears to have consisted of three separate piles united by galleries or lines of lower buildings. The exact plan of the whole has not as yet been made out, but the apartments have evidently varied in size from mere closets to extensive courts. The walls still stand at many of the angles with a height of from 40 to 50 feet, and indicate an original elevation of several stories, perhaps six or seven. At a distance of about 450 feet from the main building are the substructions of a smaller edifice, consisting of a series of rooms ranged round a square court, so that there are seven to each side besides a larger apartment at each corner. The whole district of Casas Grandes is further studded with artificial mounds, from which are excavated from time to time large numbers of stone axes, *metates* or corn-grinders, and earthen vessels of various kinds. These last have a white or reddish ground, with ornamentation in blue, red, brown or black, and are of much better manufacture than the modern pottery of the country. Similar ruins to those of Casas Grandes exist near the Gila, the Salinas, and the Colorado, and it is probable that they are all the erections of one people. Squier is disposed to assign them to the Moquis.

CASaubon, ISAAC (1559-1614), was born at Geneva, 18th February 1559, of French refugee parents. On the publication of the edict of January 1561, the family returned to France and settled at Crêt in Dauphiné, where Arnold Casaubon, Isaac's father, became minister of a Huguenot congregation. Till he was nineteen, Isaac had no other instruction than what could be given him by his father amid the distractions of those troubled years. Arnold was away from home whole years together, in the Calvinist camp, or the family were flying to the hills to hide from the fanatical bands of armed Catholics who patrolled the country. Thus it

was in a cave in the mountains of Dauphiné that Isaac received his first lesson in Greek, the text-book being *Isocrates ad Demonium*.

At nineteen Isaac was sent to the Academy of Geneva, where he read Greek under Francis Portus, a native of Crete. Portus died in 1581, having recommended Casaubon, then only twenty-two, as his successor. At Geneva he remained as professor of Greek till 1596. Here he married twice, his second wife being Florence, daughter of the celebrated scholar-printer, Henri Estienne. Here, without the stimulus of example or encouragement, with few books and no assistance, in a city peopled with religious refugees, and struggling for life against the troops of the Catholic dukes of Savoy, Casaubon made himself the consummate Greek scholar, and master of ancient learning, which he became. He gave himself up to a study of the classical remains with a zeal and persistency which were fed only by an innate love of acquisition. His great wants were books and the sympathy of learned associates, both of which were wanting at Geneva. He spent all he could save out of his small salary in buying books, and in having copies made of such classics as were not then in print. Henri Estienne, Beza, and Lect were, indeed, men of superior learning. But Henri, in those last years of his life, was no longer the Estienne of the *Thesaurus*; was, besides, never at home, and would not suffer his son-in-law to enter his library. "He guards his books," writes Casaubon, "as the griffins in India do their gold!" Beza was engrossed by the cares of administration, and retained, at most, an interest for theological reading. Lect, a lawyer, had left classics for the active business of the council. The sympathy and help which Casaubon's native city could not afford him, he endeavored to supply by cultivating the acquaintance of the learned of other countries. Geneva, as the metropolis of Calvinism, received a constant succession of visitors. The Continental tour of the young Englishman of birth was not complete without a visit to Geneva. It was there that Casaubon made the acquaintance of young Henry Wotton, who lodged in his house, and borrowed his money. Of more consequence to Isaac Casaubon was the acquaintance of Richard Thomson of Clare, for it was through Thomson that the attention of Scaliger, settled in 1593 at Leyden, was directed to Casaubon. Scaliger and Casaubon first exchanged letters in 1594. Their intercourse, which was wholly by letter, for they never met, passes through the stages of civility, admiration, esteem, regard, and culminates in a tone of the tenderest affection and mutual confidence. Influential French men of letters, the Protestant Bongars, the Catholic De Thou, and the Catholic convert Canaye de Fresne, aided him by presents of books and encouragement, and endeavored to get him invited, in some capacity, to France.

This was effected in 1596, in which year Casaubon accepted an invitation to the university of Montpellier, with the title of "conseiller du roi" and "professeur stipendié aux langues et bonnes lettres." In Montpellier he never took root. He held the professorship there only three years, with several prolonged absences. He was not, at any time, insensible to the attractions of teaching, and his lectures at Montpellier were followed not only by the students, but by men of mature age and position. But the love of knowledge was gradually growing upon him, and becoming a devouring passion which excluded all other ambition. He began to perceive that the editing Greek books was an employment more congenial to his peculiar powers than teaching. At Geneva he had first tried his hand in some notes on Diogenes Laertius and on Theocritus, of small account. His *début* as an editor had been a complete Strabo

(1587), of which he was so ashamed afterward that he apologized for his crudity to Scaliger, calling it "a mis-carriage." This was followed by a text of Polyænus, an *editio princeps*, 1589; a text of Aristotle, 1590; and a few notes contributed to Estienne's editions of Dionysius of Halicarnassus and Pliny's *Epistolæ*. It is not till we come to his edition of Theophrastus' *Characteres*, 1592, that we have a specimen of that peculiar style of illustrative commentary, at once apposite and profuse, which distinguishes Casaubon among annotators. At the time of his removal to Montpellier he was engaged upon what is the capital work of his life, his edition of, and commentary on, Athenæus.

In January, 1599, he received a summons to repair to Paris, where he remained till 1610. These ten years were the brightest period of his life. He had attained the reputation of being, after Scaliger, the most learned man of the age,—an age in which learning formed the sole standard of literary merit. He was placed above penury, though not in easy circumstances. In October, 1610, he went to England in the suite of the ambassador, Lord Wotton, of Marley. He had the most flattering reception from James I. Casaubon, though a layman, was collated to a prebendal stall in Canterbury, and had a pension of £300 assigned him from the exchequer.

Meanwhile his situation in London gradually developed unforeseen sources of discomfort.

Having been taken up by the king and the bishops, he had to share in their rising unpopularity. The courtiers looked with a jealous eye on a pensioner who enjoyed frequent opportunities of taking James I. or his weak side—his love of book talk,—opportunities which they would not have known how to use. Cassaubon was especially mortified by Sir. H. Wotton's persistent avoidance of him, so inconsistent with their former intimacy. His windows were broken by the roughs at night, his children pelted in the streets by day.

But the most serious form of discomfort in his English residence was that his time was no longer his own. He was perpetually being summoned out of town to one or other of James' hunting residences that the king might enjoy his talk. He had come over from Paris in search of leisure, and found that a new claim on his time was established. The king and the bishops wanted to employ his pen in their literary warfare against Rome. They compelled him to write first one, then a second, pamphlet on the subject of the day,—the royal supremacy. At last, ashamed of thus misappropriating Cassaubon's stores of learning, they set him upon a refutation of the *Annals* of Baronius, then in the full tide of its credit and success. Upon this task Cassaubon spent his remaining strength and life.

He died in great suffering, July 1, 1614. His complaint was an organic and congenital malformation of the bladder; but his end was hastened by an unhealthy life of overstudy, and latterly by his anxiety to acquit himself creditably in his criticism on Baronius. He was buried in Westminster Abbey. The monument by which his name is commemorated, was erected many years later by his friend, Thomas Morton.

CASBIN, KASSIN, KAZBIN, a city of Persia, in the province of Irak. It is built in a fertile plain, south of Mount Elburz, and is square in form, and surrounded by a wall of brick, with towers. Its extent is greater than that of Teheran; but the place has been repeatedly shaken by earthquakes, and many of these streets are in ruins, as are most of the magnificent buildings seen here by Chardin in 1674. The most remarkable remains are the palace of the Sufi princes, and the mosque, with its large dome. The city is said to have been founded in the fourth century. It is the birthplace of the poet

Lokman, and of the geographer Ham el Ouliah. Population estimated at 25,000.

CASCADE RANGE, a chain of mountains in Oregon and Washington, extending into British Columbia. The highest peaks are Mt. Pitt, 9,600 feet; Mt. Jefferson, 10,200; Mt. Hood, 11,225; Mt. Baker, 10,700; St. Helen's, 12,000; and Tacoma, 14,445 feet. They are of volcanic origin, contain most romantic scenery, and give rise to the enormous cascades of the Columbia river, which break through the range through vast canons.

CASCARILLA BARK (Span. *cascara*, bark), the tonic and astringent bark of *Croton Eluteria*, a small tree cultivated in the Bahamas, where it is known as the *Sweet-wood* and the *Seaside Balsam*.

CASE has numerous technical meanings in law. In the United States, while the word case is, like cause, applied to every question contested in court, it also retains a limited meaning—*e. g.*, an action of damages for tort, where the older forms are unsuitable, and an action for negligence against a corporation.

CASE-HARDENING is the process of converting the surface of certain kinds of malleable iron goods into steel, thereby making them harder, less liable to rust, and capable of taking on a better polish. Fire-irons, gun-locks, keys, and other articles of limited size are often so treated, but the process is sometimes applied to large objects, such as iron railway bars. The articles are first formed and heated to redness with powdered charcoal or cast-iron, the malleable iron taking carbon from either of these to form a skin of steel upon it; the heated objects are then cooled in cold water, or in oil when they are of a delicate nature.

CASEIN is an organic compound allied to albumen, found in the milk of the mammalia. It also exists in peas, beans, and other leguminous seeds, and is then known as legumin. The proportion of casein in milk varies, but averages about 3 per cent. The elementary bodies which enter into the composition of casein, and the proportion in which these are present in 100 parts are—carbon, 53.83; hydrogen, 7.15; nitrogen, 15.65; oxygen, 22.52; and sulphur, 0.85.

CASEMATE, originally a loop-holed gallery, since called a "caponier," from which, without risk of loss to themselves, the garrison of a fort could fire upon an enemy who had obtained possession of the ditch. The term is now applied to any bomb-proof vaulted chamber, even when merely used as quarters for the garrison. Casemates are utilized to cover guns, magazines, stores, or hospitals, from high-angle or vertical fire.

CASE-SHOT, or CANISTER, is an artillery projectile for use at close quarters, and consists of a sheet-iron or tin cylinder filled with bullets varying from half an ounce to one pound in weight, and in number according to the size of the gun.

CASCIANO DEI BAGNI, a village of Italy in the province of Siena and district of Montepulciano, in the valley of the Paglia. It possesses warm mineral springs, and its bathing establishments attract a large number of visitors. Population, 3,585.

CASERTA, the capital of the district of Terra di Lavoro, in the province of Naples, and an episcopal see. It is situated on a rich alluvial plain, and has nearly 30,000 inhabitants.

CASH (old Fr. *Casse*, a chest for containing money) is used for money as distinguished from produce, in which sense it includes all immediately negotiable paper—bills, drafts, checks and bonds, as well as coin and bank notes. At other times it is used in a limited sense to denote coin and bank notes, as distinguished from negotiable instruments which pass by indorsation. In China *cash* is the name of a small copper or brass coin.

CASHAN, or KASHAN, a city of Persia, in the province of Irak, ninety-two miles north of Ispahan, in a dry and stony plain. The city is said to have been founded by Zobeide, wife of Haroun al Raschid. The city suffered from an earthquake in 1853. Population, 25,000.

CASHEL, an inland city of Ireland, in the county of Tipperary, 108 miles southwest from Dublin, and within five miles of the Great Southern and Western railway. Population (1889), 5,000.

The Rock of Cashel is the object of chief interest in the place. This elevation of limestone formation rises abruptly from the plain to a height of about 300 feet, and is a commanding object for many miles around. Its summit is occupied by the most interesting assemblage of ruins in Ireland, consisting of the remains of St. Patrick's Cathedral, a round tower, Cormack's Chapel, and an ancient cross. The chapel, which is said to have been erected by King Cormack M'Carthy in the 12th century, is considered to be the oldest stone edifice in the country. In its style it combines the high stone roof with the richest Norman decoration. The cathedral is cruciform in its design, and contains many interesting sculptures and tombs. In the adjoining cemetery there stands, on a rude pedestal, the "Cross of Cashel," with an effigy of St. Patrick sculptured on its side. The round tower, situated at the north-east angle of the cathedral, rises about 90 feet, with a circumference of 58 feet, and unlike the neighboring ruins has been built not of the limestone of the "Rock" but of freestone.

CASHEW NUT, the fruit of the Cashew, Cadju, or Acajou tree, *Anacardium occidentale* (Nat. Ord. *Anacardiaceæ*), a native of the West Indian Islands. The fruit is kidney-shaped, about an inch in length, and the kernel is enclosed in two coverings, the outer of which is smooth, grey, and leathery. Inside this external rind is a dark-colored layer, containing an excessively acrid juice. The kernels have a bland, oily, pleasant taste. They are much eaten, both raw and roasted, in the tropical regions in which the tree is cultivated, and they yield a light-colored, sweet-tasted oil, said to be equal to olive oil for culinary purposes. The fruit-stalk, immediately under the fruit, is swollen and fleshy, and assumes a pear-like shape. This swollen portion of the stalk has a pleasant acid taste, and is eaten under the name of Cashew Apple. By fermentation it yields an alcoholic beverage, from which a spirit for drinking is distilled in the West Indies and Brazil. The tree also yields a gum analogous to gum arabic.

CASHGAR. See KASHGAR.

CASHMERE. See KASHMIR.

CASHMERE GOAT, a variety of the goat (*Capra hircus*, var. *laniger*), remarkable for its long, fine, and silky hair, from which the famous Cashmere shawls are made. It is found in Thibet and Bokhara, whence the finest goat hair is imported into Cashmere, to be there manufactured. It has been bred in the United States to a limited extent.

CASINO. See MONTE CASINO.

CASIRI, MICHAEL, a learned Maronite, was born at Tripoli in 1710. He studied at Rome, where he afterwards for ten years taught Arabic, Syriac, and Chaldee, and gave lectures in philosophy and theology. In 1748 he went to Spain, and was employed in the royal library at Madrid. He was successively appointed a member of the Royal Academy of History, interpreter of Oriental languages to the king, and joint-librarian of the Escorial. In 1763 he became principal librarian, a situation which he appears to have held till his death in 1791. Casiri published a work entitled *Bibliotheca Arabico-Hispana Escorialensis*, 2 vols. fol., Madrid, 1760-1770. It is a catalogue of above 1800 Arabic MSS., which he found in the library of the Escorial; and it also contains a

number of quotations from Arabic works on history. The MSS. are classified according to the subjects of which they treat. The second volume, which is furnished with a copious index, gives an account of a large collection of information regarding the wars between the Moors and the Christians in Spain.

CASORIA, a town of Italy, five miles north-east of Naples, in one of the most fertile districts of the Terra di Lavoro. It is the birthplace of the painter Pietro Martino. Population about 7000.

CASPE, a city of Spain, in the province of Aragon, about 55 miles south-east of Saragossa on the banks of the River Guadaloupe, which runs into the Ebro a short distance below the town. Its prosperity is due to the mines of iron and of coal which abound in its vicinity, and which have given rise to manufactories. It has a castle and several convents and hospitals, and is famous in history as the scene of the congress of the Aragonians, Catalonians, and Valencians in 1412, which elected Ferdinand of Castile to the throne. It was captured from the Moors by Alphonso II. in 1168, and bestowed on the knights of St. John. Population in 1889, 10,600.

CASPIAN SEA. The Caspian Sea, which was known under that name to the Greeks and Romans (Herodotus having given a generally accurate account of it, stating that it is an inland sea having no connection with the ocean), is the largest of those salt lakes or closed inland seas which may be considered as "survivals" of former oceanic areas; and it is the one whose physical and biological conditions have been most fully studied. These conditions are in many respects extremely peculiar; and tolerably certain conclusions of great interest may be drawn from them, in regard to the past history of the large extent of low steppes that lie—chiefly in Asia, but partly in Europe also—to the east, north, and west of its present area.

The general form of the Caspian may be described as a broad band, with sides almost straight and parallel, except near its northern end, where it turns sharply round to the east. The general direction of its axis is about N.N.E. and S.S.W.,—its most northerly point nearly coinciding with the mouth of the River Ural, and its most southerly being about half-way between the towns of Reshd and Astrabad. The distance in a straight line between these two points is about 740 miles. The average breadth of its middle portion is about 210 miles, but the eastern extension of its northern portion into the Bay of Mertvy Kultuk increases the width of that part to 430 miles; and its southern portion also widens to nearly 300 miles. The total area is estimated at about 180,000 square miles.

The most important fact in the physical geography of the existing Caspian is that its surface is 84 feet below that of the Black Sea, which may be considered as not differing much from the general oceanic level.

The basin of the Caspian may be considered as consisting of three distinct parts,—the northern, the middle, and the southern. The *northern* portion is extremely shallow,—its bottom, which is nowhere more than 50 feet below the surface, being a continuation of the almost imperceptible slope of the steppe, so that there is no definite shore-line. It is into this portion that the Volga, the Ural, and the Kuma discharge themselves; and the deposit of alluvium which these rivers bring down is gradually raising its bottom, and will in time convert it into a salt marsh. Along the north-western border of this basin, from the delta of the Volga to that of the Kuma, a space of 250 miles, the shore is gashed with thousands of narrow channels, termed *limans*, from 12 to 30 miles in length, separated by chains called *bugors*, which pass landwards into the level ground of

the steppes. In the neighborhood of the mouths of the Volga and Kuma, the excess of water which these rivers bring down at the time of the melting of the snows passes into these channels, and tends to keep them open; so that when the inundation is over, the sea again flows into them. But along the intervening part of the coast, the channels, like the intervening hillocks, are not continuous, but form chains of little lakes, separated by sandy isthmuses. Although these channels run nearly parallel to each other, yet they have a somewhat fan-like arrangement; their centre of radiation being the higher part of the isthmus which separates the basin of the Caspian from the north-east portion of the Black Sea,—a fact, as will be seen hereafter, of no small significance. The coast-line of the Bay of Mertvy Kultuk, on the other hand, is formed by a chain of low calcareous hills, constituting the rampart of the plateau of Ust Urt or Turkoman Isthmus, which divides the Caspian from the Sea of Aral; and it is between headlands of this high plain that the long extension of this bay termed the Karasu (or Black Water) runs inland, the town of Novo Alexandrovsk being situated near its entrance.

The northern basin of the Caspian may be considered to terminate on the west side with the Bay of Kuma, and on the east with the hilly peninsula of Mangishlak, on which the town of Novo Petrovsk is situated. To the south of the line joining these points, the western shore-line is higher, and the water deepens considerably,—thus forming the *middle* basin of the Caspian, which may be considered to extend as far south as Cape Apsheron, the south-eastern termination of the great Caucasian range. This middle basin receives the large river Terek, which discharges itself by several mouths (some of them entering the Bay of Kuma) through an alluvial delta; and several smaller streams flow into it from the slopes of the Caucasus mountains through the low plain which intervenes between their base and the border of the Caspian. Near the most considerable of these, the Kabir Yalama, a rocky spur of the Caucasus comes down nearly to the sea; and a narrow pass is thus formed, which has been fortified from very ancient times, being formerly known as the *Albanie* or *Caspie Plye*, and now as the Pass of Derbend, this being a small town, built on the declivity in which the range terminates. The eastern shore of this portion of the Caspian is formed by the plateau of Ust Urt, or “high plain,” a very remarkable plateau from 550 to 727 feet above the level of the Caspian, which extends from its eastern shore to the Sea of Aral, rising abruptly from both seas, and ranging about 400 miles in the north and south direction; its north and south borders are formed by a precipitous face or cliff, which has much the appearance of an ancient sea-margin. As it is composed of later Tertiary strata, its elevation must have occurred at a time not geologically remote. The headlands of the Ust Urt form an abrupt coast-line along the northern part of the eastern border of the middle basin, with occasional bays into which several small streams from the plateau discharge themselves. Further south, however, the plateau recedes, and the land shelves off more gradually; and here an extensive but shallow basin presents itself (of which more will presently be said) almost entirely cut off from that of the Caspian, termed the Karaboghaz, or Black Gulf. To the south of this the coast-line rises again; and a peninsula is formed by an extension of the Balkan Mountains, which may be considered as forming the southern termination of the middle basin. Except along the shore-lines, the depth of this basin everywhere exceeds that of the northern,—being greatest in its middle portion, where over a small area it reaches

400 fathoms, whilst it shallows again towards the south, where there is a sort of ridge between Cape Apsheron and the Balkan peninsula, at the average depth of 30 fathoms, that separates it from the southern basin.

The *southern* basin ranges from the Balkan Peninsula on the east and Cape Apsheron on the west to the shore-line formed by the base of the great Elburz range of mountains, which curves round its low and swampy border, from the mouth of the Kur to Astrabad, at an average distance of about 40 miles, rising in the peak of Sawalan near Tabreez to 15,000 feet, and in the snow-capped summit of Demavend, on whose southern slope Teheran is situated, to 18,600. These mountains are composed of granite and porphyry, and are covered with recent volcanic deposits. South of Cape Apsheron, this basin receives the large river Kur, which drains the southern slopes of the Caucasian range; and this is joined, at no great distance from its mouth, by another large river, the Aras or Arax (the ancient *Araxes*), which forms the boundary between Russian Trans-Caucasia and Persia. The joint channel discharges its water by several mouths, part of them opening into the Gulf of Kizil-Agatch, which is the most considerable extension of the southern basin. From the mouths of the Kur to the Gulf of Enzeli, which resembles the Karaboghaz on a smaller scale, there is no considerable stream; but not far to the east of the town of Reshd or which Enzeli is the port, the Sefid or White River discharges itself, this being formed by the confluence of the Kizil-Uzen with another considerable river, the two together draining a large portion of the slopes of the western division of the Elburz range, and of its extension towards the Caucasus. The southern border of the Caspian, between the mouth of the Sefid and Astrabad, receives numerous small streams from the northern slopes of the Elburz, but no considerable river; the Bay of Astrabad, however, receives at its northern end the Attruk, a river of considerable importance, which drains an extensive valley enclosed by the mountain ranges that form the southern border of the desert plains of Khiva. On the eastern coast, opposite to the Gulf of Kizil-Agatch, are the Balkan Bay and the Adj-Bojur Bay, which lie between extensions of the Balkan Mountains. One or both of these bays, it may now be pretty confidently stated, formerly received the mouths of the ancient *Oxus* (now Amou-Daria), when it discharged itself into the Caspian, instead of into the Sea of Aral; and there is further reason to believe that a communication here at one time existed between the Caspian and the Sea of Aral, through a furrow which lies along the southern border of the Ust Urt, and which terminates in what was formerly known as the Gulf of Aboughir, a southern extension of Lake Aral now dried up. The depth of the southern basin of the Caspian is for the most part considerable, ranging in its central portion between 300 and 500 fathoms.

The drainage-area of the Caspian is much more extensive on the north and west than on the east and south. The Volga is estimated to drain an area of 527,500 square miles, and the Ural an area of 85,000 square miles,—these two rivers together probably bringing down more water than the Danube and the Don pour into the Black Sea. When to these we add the Kuma, the Terek, the Arax and Kur, the Sefid, and the Attruk, it is obvious that the total amount of river water annually discharged into the basin of the Caspian must be almost, if not quite, the equal of that which is discharged into the basin of the Black Sea. Yet the whole amount of fresh water returned by rain and rivers to the basin of the Caspian is only sufficient to compensate for the loss by evaporation from its surface,—as is

shown by the fact that its present level remains constant, or, if it changes at all, rather sinks than rises. Now that the level of the Caspian was formerly about the same as that of the Black Sea, although at present 84 feet below it, is shown by the erosion of the rocks that formed the original sea-shore of the southern basin, which, at the height of from 65 to 80 feet above the present level, have been furrowed out into tooth-shaped points and needles; and if the water were again to rise to that level, it would overflow many hundred thousand square miles of the southern steppes, extending the area of the basin as far as Saratov. Now, supposing the Caspian to have been formerly in communication with the general oceanic area (which will be hereafter shown to be almost a certainty), a reduction of its level and a contraction of its area would follow as a necessary consequence, whenever that communication was cut off. For, as the evaporation-area would have then been much greater than it is at present, whilst the drainage-area would have been the same, there must have been a great excess of loss by evaporation over the water returned by rain and rivers; and this excess, producing a reduction of level, would have reduced the area of the northern shallow portion, until it contracted itself within its present limits. That this reduction was rapid, is indicated by two sets of facts;—first, the absence of any erosion of rocks between the level of the old erosion and the present level; and second, the fan-like arrangement of the *limans* and intervening *bugors* on the north-west shore, which makes it difficult to suppose that these channels can have been formed except by the furrowing of the soft soil during the sinking of the water, corresponding to that which is seen on a small scale on the muddy banks of a reservoir in which the water is being rapidly lowered by the opening of a sluice-gate.

The temperature of the Caspian area is remarkable for its wide range, both geographical and seasonal,—the difference between the mean winter temperatures of its northern and southern extremities being very great, whilst over its whole extent a high summer temperature prevails.

The shallow northern basin of the Caspian is frozen during the entire winter, and the ice sometimes extends to the middle basin; the deep southern basin on the other hand, is never frozen over.

The prevalent winds of the Caspian are the south-east, which usually blow between October and March, and the north or north-west, which are common between July and September.

The animal life of this inland sea presents a remarkable admixture of marine and fresh-water types. The presence of seals and herrings seems an unmistakable indication of its former communication with the ocean,—and this rather northwards with the Polar Sea than westwards through the Black Sea and Mediterranean. Again, the Caspian abounds in salmon, a fish that may be considered essentially marine, though resorting to rivers to breed. Among its most notable and valuable inhabitants are four species of *Sturionidæ*—the sturgeon, the sterlet, the sevriouga, and the beluga—which are essentially estuary fish, ascending rivers from their mouths. The fisheries are extremely valuable,—a very large amount of fish being salted for transmission to distant parts, while the *Sturionidæ* afford the principal supply of caviare (prepared from their roe) and of isinglass (their swim-bladders cut into strips) for the whole world.

Various parts of the shore of the Caspian abound in naphtha and petroleum. This is especially the case with the Peninsula of Apsheron, and with the Island of Tchilehon or Naphthalia, which lies near the opposite

coast, off the Bay of Balkan. The whole soil of Apsheron is said to be saturated with naphtha, which rises wherever a hole is bored; and round the town of Baku there are nearly a hundred bituminous springs, from many of which considerable supplies of naphtha are drawn. Some of these are constantly burning; and one of them, termed the “burning field,” was formerly a celebrated “shrine of grace” to the Ghebers or Parsees, multitudes of pilgrims resorting to it, as Mahometans do to Mecca.

CASS, LEWIS, an American general and statesman, was born at Exeter, New Hampshire, on the 9th day of October, 1782. He began life as a law-student, and was called to the bar at the age of twenty. Four years later he became a member of the Ohio Legislature. During the war with England (1812–14) he served in the army, and rose to the rank of general. In 1813 he was appointed governor of Michigan,—a position which gave him the chief control of Indian affairs, for the territory was then occupied almost entirely by natives, there being only 6000 white settlers. This post he held for eighteen years, during which he obtained large tracts of territory from the Indians, instituted surveys, constructed roads, and explored the lakes and sources of the Mississippi. (For an account of these explorations see *North American Review*, l., lv.) About this time also he amassed the greater part of his large fortune by judicious purchase of land. In 1831 he became secretary of war under General Jackson, and he fulfilled the duties of this office during the first two years of the Florida war. Five years later he was appointed minister plenipotentiary to France, where he became acquainted with Louis Philippe, to whom he gives the highest praise in his *France: its King, Court, and Government* (1840). The cause of his resigning this appointment was that he disapproved of the concessions granted to England in the treaty concluded with Lord Ashburton by Daniel Webster, the American secretary of state, for the purpose of settling the dispute between England and the United States with regard to the north-eastern frontiers of the latter country. General Cass twice stood as candidate for the presidency, viz., in 1848 and 1852, but both times unsuccessfully. The last public office which he held was that of secretary of war under Buchanan; and, in the end of 1860, he retired into private life, upon the refusal of the president to send reinforcements to Fort Sumter. He died on the 17th June 1866. The chief points of the policy of General Cass were his defense of slavery, and his consequent attack upon the quintuple treaty which aimed at its suppression; his advocacy of a high protective tariff, and of extension of territory in the case of Texas; and his support of the cause of national unity, notwithstanding his expressed opinion that the Union had no right to coerce the separate States. As an author, General Cass is known by the writings already mentioned, and by his history of the Indians of the United States, which appeared in 1823.

CASSABA, or CASABA, a town of Asia Minor, in the sanjak of Manisa, 63 miles east of Smyrna, with which it is connected by rail. Its population is estimated at 15,000, of whom about 10,000 are Turks and the rest Greeks and Armenians.

CASSANA, NICCOLÒ (1659–1714), often called NICOLETTO an Italian painter, was born at Venice, and became a disciple of his father, Giovanni Francesco Cassana, a Genoese, who had been taught the art of painting by Bernardino Strozzi (“il Prete Genovese”). Having painted portraits of the Florentine court, and also of some of the English nobility, Nicoletto was invited to England, and introduced to Queen Anne, who sat to him for her likeness, and conferred on him many

marks of favor. He died in London in 1714, having given way to drinking in his later years.

CASSANDER (354-297 B.C.), king of Macedonia, was probably born about 354 B.C. He first appears in history at the court of Alexander, defending his father Antipater against the accusations of his enemies. Whether it be true or not that he brought himself into disfavor by manifesting his contempt for the Eastern customs with which the king had surrounded himself, it is certain he conceived a great hatred for Alexander, a hatred so well known that he was accused of having caused the king's death by poison. When his father became regent of Macedonia, Cassander was made chiliarch; but, when Polysperchon succeeded Antipater, he was not content with this position, but allied himself with Ptolemy Soter and Antigonus, and declared war against the regent. His success was such as to win over most of the Greek States; and he also effected an alliance with Eurydice, the ambitious wife of King Arrhidæus. But she and her husband, however, together with Cassander's brother Nicanor, and a number of others, were soon after slain by Queen Olympias. Cassander at once marched against Olympias, and, having forced her to surrender at Pydna, put her to death. Not long afterwards he also murdered Roxana and Alexander, the wife and son of Alexander the Great. He had already connected himself with the royal family by marriage with Thessalonica, Alexander's half-sister, and, having formed an alliance with Seleucus, Ptolemy, and Lysimachus, and defeated Antigonus and Demetrius near Ipsus, in 301, Cassander became undisputed sovereign of Macedonia and nominal king of Greece. He died some three years after, in 297 B.C. Cassander is said to have been a man of cultivated literary taste, and we are told that his delight in Homer was such that he could repeat from memory every line of his poems.

CASSANDER, GEORGE (1515-1566), a Flemish theologian, was born at Cadzand (whence his name), a village in Zeeland. He was for some time professor of classics and theology at Bruges and Ghent; but most of his life was spent in the endeavor to effect a reunion of the Roman Catholic and Protestant churches.

CASSANDRA, in Grecian story, daughter of Priam and Hecuba, was beloved of Apollo, who promised to bestow on her the spirit of prophecy if she would comply with his desires. Cassandra accepted the proposal; but no sooner had she obtained the gift than she laughed at the tempter, and refused to fulfil her promise. Apollo revenged himself by ordaining that her predictions should be discredited; and hence it was in vain that she prophesied the ruin of Troy. On the capture of that city she was ravished by Ajax, the son of Oileus, in the Temple of Minerva. In the distribution of the booty, Cassandra fell to the lot of Agamemnon, who loved her deeply; but again her foresight was useless, for he would not believe her prediction that he should perish in his own country. The prophecy was fulfilled, for both were slain through the intrigues of Clytemnestra.

CASSANO, a town and bishop's seat of Italy, in the province of Calabria, Citra, 7 miles E.S.E. of Castrovillari. Population (1890), 10,000.

CASSAVA, is the name given to the farinaceous root stocks of two species of Euphorbiaceous plants, the Bitter Cassava, *Manihot utilissima*, and the Sweet Cassava, *M. Aipi*, both highly important sources of food starches. The plants are natives of South America, but the Bitter Cassava, which is the most important of the two in an economic sense, has been introduced into most tropical regions, and is extensively cultivated in the East Indian Archipelago, from which, as well as

from Brazil and other South American states, its starch in the form of tapioca is a staple article of export.

CASSEL, or KASSEL, the capital of the former electorate of Hesse Cassel, in Western Germany, and, since its annexation by Prussia in 1866, the capital of the province of Hesse Nassau, is pleasantly situated on both sides of the River Fulda, over which a stone bridge leads to the lower new town. The river is navigable, and railways connect the town with all parts of Germany. The museum contains various valuable collections of curiosities, interesting mosaics, a library of 100,000 volumes and valuable manuscripts. In the cabinet of curiosities there is a complete collection of clocks and watches, from the earliest to the present time.

On a slope of the Habichtswald Mountains, three miles from Cassel, and approached by an avenue, is the famous summer palace (with park and forest) of Wilhelmshöhe, sometimes called the Versailles of Germany. Napoleon III. resided here after the battle of Sedan. The surrounding gardens are beautifully adorned with fountains, cascades, lakes, and grottoes, the principal fountain sending up a jet of water 180 feet high and 12 feet in diameter.

Perhaps the earliest mention of Cassel occurs in a document of the year 913, when the name appears in the form of Chassala. The town was fortified by the Landgrave Philip the Magnanimous in the 16th century; and in 1687 it was augmented by the formation of the Upper New Town by the Landgrave Charles. In 1762 it was captured by Frederick of Brunswick, after an obstinate siege, during which it had been defended by the French under Diesbach; and not long after its fortifications were dismantled. In 1807 it became the capital of the kingdom of Westphalia; in 1813 it was bombarded and captured by the Russian general Chemichoff; in 1830, 1831, and 1848 it was the scene of violent commotions; from 1850 to 1851 it was occupied by the Prussians, the Bavarians, and the Austrians; and in 1866 it passed definitively into the possession of Prussia. Of late it has become a very thriving town, and is now a very favorite residence for strangers. Population, 50,000.

CASSEL, a town of France, in the department of Nord, and arrondissement of Hazebrouck, is situated 28 miles N.W. of Lille, on an isolated hill, 800 feet high, which commands a most extensive view in all directions. Portions of the three kingdoms of France, Belgium, and England can be seen, with 32 towns and 100 villages, including St. Omer, Dunkirk, Ypres, and Ostend. It is supposed to occupy the site of the *Castellum Morinorum*, and was certainly a Roman station, as the numerous remains of the Gallo-Roman period sufficiently attest. It is frequently mentioned in the wars of the Middle Ages, and was the scene of important battles in 1071, 1328, and 1677. In 1771 General Vandamme was born in the town. Population in 1889, 4,860.

CASSIA BARK is the aromatic bark derived from various species of *Cinnamomum* other than *C. zeylanicum*, which is the source of the true cinnamon of commerce. The greater part of the supply coming from China, it is sometimes termed Chinese cinnamon. The tree or trees which yield the Chinese supplies are very extensively cultivated throughout the southern provinces of that empire, and grow with little call for attention in situations unsuited for other forms of cultivation. From various species of *Cinnamomum*, cassia is also obtained in Northern India and Nepal, in Java, Borneo, Sumatra and the Philippine Islands.

CASSIANUS, JOANNES EREMITA, or JOANNES MASSILIENSIS, a celebrated recluse, and one of the first founders of monastic institutions in Western Europe,

was probably born about 360, and is supposed to have died about the year 448. The place of his nativity has been much disputed, but he spent the early part of his life in the monastery of Bethlehem, with his friend Germanus. In company with that monk he visited Egypt, and dwelt for several years among the ascetics of the desert near the banks of the Nile. In 403 he repaired to Constantinople, where he received ordination as deacon from the hands of Chrysostom. At Marseilles he founded two religious societies—a convent for nuns, and the abbey of St. Victor, which during his time is said to have contained 5000 inmates. In later times his regulations enjoyed a high reputation, and were adopted by the monks and nuns of Port Royal.

CASSINI, the name of a family of distinguished astronomers, who succeeded one another as directors of the Observatory at Paris for four generations.

GIOVANNI DOMENICO CASSINI, the first and most famous, was born at Perinaldo, near Nice, on 8th June 1625, and died on 14th September 1712. He was educated by the Jesuits of Genoa, among whom he gained some reputation as a writer of Latin verse. His study of astronomy was introduced by a fancy for astrology; but, notwithstanding the success of several of his predictions, he became convinced of the baseless character of the art, and thenceforth gave himself entirely to the pursuit of the science, in which, at the age of twenty-five, he had made so much progress that he was appointed professor of astronomy in the University of Bologna. Here he made the observations on the comet of 1652 which formed the subject of his first book; in this he denied that comets are free from subjection to law, and explained them as the result of a mixture of exhalations from the earth and from the stars. About this time he gave a good deal of attention to experiments on the transfusion of blood, and on the habits and structure of insects. Clement IX. valued him so highly that it was only on condition that he should return to Italy after two or three years that he would consent to his accepting Colbert's offer of the directorship of the Observatory of Paris. Cassini, however, became attached to his new situation, was naturalized, and married a French lady. On September 14, 1671, he commenced his observations; and his discoveries soon made him the best known astronomer in Europe, and gained him a reputation of an extravagant character. See ASTRONOMY.

JACQUES CASSINI (1677–1756), was the son of Domenico Cassini. After his father's death he became director of the Observatory of Paris, and was also appointed to the post of *maitre des comptes*.

CESAR FRANCOIS CASSINI, or CASSINI DE THURY (1714–84), was son of the preceding, whom he succeeded in both his appointments. Like his father and grandfather, he was a patient and accurate observer, but such work by itself no longer brought renown.

JACQUES DOMINIQUE CASSINI, Count de Thury, (1748–1845), son of the preceding, completed the line of Cassinis, who for a hundred and twenty-two years filled the post of director of the Observatory of Paris. He appears to have held more philosophical views than his predecessors, but his plans to improve the Observatory, by obtaining larger instruments, and by other means were cut short in 1793. In that year the National Assembly decreed that three of his pupils should be united with him in his office, an arrangement to which he refused to submit. Next year he was in consequence imprisoned for seven months, and after this he abandoned astronomy, and spent the rest of his life in retirement.

CASSINO, a game of cards played by two or more players. Each receives four cards, and four are dealt

face up on the board. The first object is to get most cards, value three points; next most spades, one point. The ten of diamonds is grand cassino and counts two; the two of spades is little cassino, one point; and each ace counts one. A player may in his turn take from the board any card corresponding to one in his hand or any number on cards whose combined spots equal the number of any card he may hold. When each player has used his four cards, each gets four more, and so to the end. The only part of the game requiring skill is the process of "building." Thus the player finds on the board a four, king, jack, and ten. He has in his hand a seven, a three, and two more cards. Placing his three upon the four, he "makes it seven," and it can only be taken by a seven. His opponent, however, may "spoil the build" by putting an ace or deuce, for example, upon it, and making it eight or nine. This, of course, only if he has the superior card then in hand. If two sevens or sets are built the build cannot be spoiled. Twenty-one points is game.

CASSIODORUS, MAGNUS AURELIUS, a Roman historian, statesman, and monk, was born at Scylaceum (Squillace), about 463. He deserves to be reckoned as one of the first and most influential of those who set the monks to literary work, and thus preserved the continuity of ancient and modern learning. He also left a number of books, which were much valued and used in the Middle Ages. But the work which is most valuable to us is his *Variarum Epistolarum, libri XII.*, which contains the decrees of Theodoric, and of his successors, Amalasontha, Athalaric, Theodatus, and Vitiges, and is the best source of our knowledge of the Ostro-Gothic empire in Italy.

CASSIOPEIA, the *Lady in her Chair*, a constellation in the Northern Hemisphere, near Cepheus, and not far from the north pole, named after the mother of Andromeda. It is marked by five stars of the third magnitude, forming a figure like a W. In the year 1572 there all at once appeared in Cassiopeia a new star, which, when first noticed by Tycho Brahe, exceeded in brightness all the fixed stars, and nearly equalled Venus. The star gradually diminished in luster, and disappeared in March, 1574.

CASSIS, a small seaport town of France, in the department of Bouches-du-Rhône, stands in a narrow valley on the Mediterranean, ten miles southeast of Marseilles. Population (1890), 3,000.

CASSIUS LONGINUS, CAIUS, is best known in history as one of the leaders in the assassination of Julius Cæsar. Little is known of his early life. In 53 B.C. he served in the Parthian campaign under Crassus, and displayed great courage and skill. He succeeded in bringing off a division of the army after the defeat of Carrhæ, and in the following year, 52 B.C., the government of the province having fallen into his hands, he was able, by cautious and skillful dispositions, to drive back the Parthians. In 61 B.C. he was compelled to retreat before a large force of the Parthians under Osaces and Pacorus, but managed to throw himself into Antioch, a strongly-fortified town, which the invaders found impregnable. They were compelled to retreat, and Cassius, pursuing them rapidly, gained a complete victory. He returned to Rome soon after, with a large fortune, and in 49 B.C. became tribune of the plebs. He at first united his fortunes with those of Pompey, but after Pharsalia he surrendered to Cæsar, and was treated by him with great generosity. He was made one of the legates, and in 44 B.C. became prætor peregrinus with the promise of the Syrian province for the ensuing year. He does not seem, however, to have been at all conciliated by these favors. He was one of the busiest of the conspirators against his benefactor,

and took an active part in the assassination on the Ides of March. Brutus and Cassius soon afterwards left Italy, and gathered together their forces in Macedonia and Syria. They succeeded in overcoming the slight opposition that was offered them in the provinces, and after taking Rhodes, united at Sardis to make a stand against the second triumvirate. They took up their position at Philippi, where they were attacked by Anthony and Octavianus. The division under Cassius was defeated, and Cassius himself, thinking all was lost, commanded his freedman to slay him. He was buried at Thasos.

CASSOCK, a long loose robe or outer coat, formerly in common wear, but now worn only by the clergy and choristers.

CASSOWARY (*Casuarus*), a genus of Struthious Birds, only inferior in size to the ostrich, and approximating more closely than any other living birds to the extinct moas of New Zealand. Not many years ago only a single species of cassowary was known, but recent researches among the Australasian islands have led to the identification of at least other four species. They are all characterized by short rudimentary wings, consisting of four or five barbless shafts, a few inches long, and apparently useless for purposes of flight, of running, or of defence; and by loosely webbed feathers, short on the neck, but of great length on the rump and back, whence they descend over the body, forming a thick hair-like covering. They possess stout limbs, with which they kick in front, and have the inner toe armed with a long powerful claw. The Galeated Cassowary (*Casuarus galeatus*) stands 5 feet high, and has a horny, helmet-like protuberance on the crown of its head; the front of the neck is naked and provided with two brightly-colored wattles; the tail is not apparent. It is a native of the Island of Ceram, where it is said to live in pairs, feeding on fruits and herbs, and occasionally on small animals. The Mooruck, or Bennett's Cassowary (*Casuarus Bennetti*), is a shorter and more robust bird, approaching in the thickness of its legs to the moas. It differs further from the preceding species in having its head crowned with a horny plate instead of a helmet. It has hitherto only been found in New Britain, where the natives are said to regard it with some degree of veneration. When captured by them shortly after being hatched, and reared by the hand, it soon becomes tame and familiar; all the specimens which have reached Europe alive have been thus domesticated by the natives. The adult bird in the wild state is exceedingly shy and difficult of approach, and, owing to its great fleetness and strength, is rarely if ever caught. It eats voraciously, and, like the ostrich, will swallow whatever comes in its way.

CAST, an object formed by pouring molten or liquid material into a mold, in which the substance sets or hardens, assuming the form and outlines of the mold.

CASTAGNO, ANDREA DEL (1390-1457), a painter of the Florentine School, was born in 1390, probably at Castagno, in the district of Mugello, and died in August, 1457. One of his principal works now extant (most of them have perished) is the equestrian figure of Nicola di Tolentino, in the cathedral of Florence.

CASTALIA, or FONS CASTALIUS, a celebrated fountain in Greece, now called the Fountain of St. John, which rises at the foot of Mount Parnassus, in the neighborhood of Delphi. It was sacred to Apollo and the Muses, and its water was used in the religious purifications of the "Pythian Pilgrims." From its connection with the Muses it is frequently referred to both by classical and by modern poets as a source of inspiration. For further details see DELPHI.

CASTANETS, a musical instrument of percussion

in the form of two hollow shells of ivory or hardwood, bound together by a band fastened on the thumb, and struck by the fingers to produce a sound in keeping with the rhythm of the music.

CASTANOS, DON FRANCISCO XAVIER DE (c. 1756-1852), duke of Baylen, a Spanish general, who served in the Peninsular War, was born at Madrid. His first success was at Baylen, where, on the 22d of July 1808, 18,000 French under Dupont surrendered to him. It is, however, said that the chief credit in this engagement is due to the Swiss, Aloys Reding. In November of the same year, Castanos was defeated at Tudela; and during the rest of the war he occupied subordinate positions. He, however, distinguished himself at Vittoria, and was placed at the head of the army which was sent to assist the Allies in 1815; and till his death, which took place on the 24th September 1852, he held a high political position, being senator and guardian to Queen Isabella.

CASTE. There are not many forms of social organization on a large scale to which the name Caste has not been applied in a good or in a bad sense. Its Portuguese origin simply suggests the idea of family; but before the word came to be extensively used in modern European languages, it had been for some time identified with the Brahmanic division of Hindu society into classes. The corresponding Hindu word is *varna*, or color, and the words *gati*, *kula*, *gotra*, *pravara*, and *karana* are also used with different shades of meaning. Wherever, therefore, a writer has seen something which reminds him of any part of the extremely indeterminate notion, Indian caste, he has used the word, without regard to any particular age, race, locality, or set of social institutions.

Caste in India is a question of more than historical interest. It is the great difficulty in the way of Government in framing laws and in governing the army, of native religious reformers in attacking the Brahmanic superstitions, and of the Protestant missionaries, who are unable to offer in the British society of India a sympathizing and protecting caste in place of that which it costs the convert so much to leave. Probably owing to the extent of the Indian Empire, and the great varieties of caste custom which prevail, one hears very conflicting accounts and opinions of the institution and its practical workings. We are aware that every caste forms itself into clubs or lodges, consisting of the several individuals of that caste residing within a small distance, and that these clubs or lodges govern themselves by particular rules or customs or by-laws. But though some restrictions and limitations, not founded on religious prejudices, are found among their by-laws, it may be received as a general maxim that the occupation appointed for each tribe is entitled merely to a preference. Every profession, with few exceptions, is open to every description of persons; and the discouragement arising from religious prejudices is not greater than what exists in Great Britain from the effects of municipal and corporation laws. In Bengal the numbers of people actually willing to apply to any particular occupation are sufficient.

The popular notion of modern caste is that it involves certain restrictions on marriage, on profession, and on social intercourse, especially that implied in eating and drinking together. It is not till the Brahmanic period of Indian history, which ends with the coming of Sakya Mouni, in 600 B.C., that we find the caste-definitions of Manu realized as facts. These are—"To Brahmans he (*i.e.*, Brahma) assigned the duties of reading the Vedas, of teaching, of sacrificing, of assisting others to sacrifice, of giving alms if they be rich, and if indigent of receiving gifts." The duties of the Kshatriya are "to

cultivate land." These three castes (the twice born) wear the sacred thread. The one duty of a Sudra is "to serve the before-mentioned classes without depreciating their worth." The Brahman is entitled by primogeniture to the whole universe; he may eat no flesh but that of victims; he has his peculiar clothes. He is bound to help military and commercial men in distress. He may seize the goods of a Sudra, and whatever the latter acquires by labor or succession beyond a certain amount. The Sudra is to serve the twice born; and even when emancipated cannot be anything but a Sudra. He may not learn the Vedas, and in sacrifice he must omit the sacred texts. A Sudra in distress may turn to a handicraft; and in the same circumstances a Vaisya may stoop to service. Whatever crime a Brahman might commit, his person and property were not to be injured; but whoever struck a Brahman with a blade of grass would become an inferior quadruped during twenty-one transmigrations. In the state the Brahman was above all the ministers; he was the rajah's priest, exempt from taxation, the performer of public sacrifices, the expounder of Manu, and at one time the physician of bodies as well as of souls.

It is still the general law that to constitute a good marriage the parties must belong to the same caste, but to unconnected families. Undoubtedly, however, the three higher castes were always permitted to intermarry with the caste next below their own, the issue taking the lower caste or sometimes forming a new class. A Sudra need not marry a wife of the same caste or sect as himself. (?)

With regard to Persia the *Zend Avesta* speaks of a fourfold division of the ancient inhabitants of Iran into priests, warriors, agriculturists and artificers; and also of a sevenfold division corresponding to the seven *amschespands*, or servants of Ormuzd.

At one time it was the universal opinion that in Egypt there were at least two great castes, priests and warriors, the functions of which were transmitted from father to son, the minor professions grouped under the great castes being also subject to hereditary transmission. Doubts were first suggested by Rossellini, and after Champollion had deciphered the hieroglyphic inscriptions, J. J. Ampère boldly announced that there were in Egypt no castes strictly so called; that in particular the professions of priest, soldier, judge, &c., were not hereditary; and that the division of Egyptian society was merely that which is generally found in certain stages of social growth between the liberal professions and the mechanical arts and trades. No difference of color, or indeed of any feature, has been observed in the monumental pictures of the different Egyptian castes. From an inspection of numerous tombs, sarcophagi, and funereal stones, which frequently enumerate the names and professions of several kinsfolk of the deceased, Ampère has concluded that sacerdotal and military functions were sometimes united in the same person, and might even be combined with civil functions; that intermarriage might certainly take place between the sacred and military orders; and that the members of the same natural family did frequently adopt the different occupations which had been supposed to be the exclusive property of the castes.

CASTEL, LOUIS BERTRAND (1688-1757), a learned mathematician, was born at Montpellier in 1688, and entered the order of the Jesuits in 1703. At first he was a student of literature, but he afterwards devoted himself entirely to mathematics and natural philosophy. He wrote several scientific works, that which attracted most attention at the time being his treatise on the melody of colors. He also published a critical account of the system of Sir Isaac Newton in French.

CASTEL-A-MARE, or CASTELLAMARE, a city and seaport of Italy, on the Gulf of Naples, 15 miles by rail south-east of the city of that name. It is situated on the lower slopes of Monte Sant' Angelo (the ancient *Mons Gaurus*), and along a sheltered beach, commanding an extensive view of the Bay of Naples from Vesuvius to Misenum. It stands near the site of the ancient *Stabia*, which was destroyed by Sulla in the social war, but continued to exist as a small place till 79 A.D., when it was overwhelmed along with Pompeii and Herculaneum by the great eruption of Vesuvius, and became for ever celebrated as the death-scene of the elder Pliny. The castle, from which the city takes its name, was erected by Frederick II., surrounded by walls and towers in the 13th century by Charles I. of Anjou, and strengthened by additional fortifications by Alphonso I. of Aragon. In shipbuilding it still ranks second of the Italian towns; and there are manufactures of linen, silk, and cotton goods, and leather. The port is small, and divided by two forts. The hill immediately above the town is covered with villas and casinos. Population about 26,000.

CASTEL-A-MARE, a seaport town of Sicily, on a bay to which it gives its name, in the province of Trapani, and about 30 miles west of Palermo. It occupies the site of the port of the ancient *Segesta*, which lay about six miles distant, and it still carries on a considerable export trade in wine, fruit, grain, and timber. Population 11,280.

CASTEL SARRASIN, a town of France, capital of an arrondissement, in the department of Tarn et Garonne, situated on the Sanguine or Azone, near its influx into the Garonne, 12 miles west of Montauban. Population in 1872, 3064.

CASTEL VETRANO, a town of Sicily, near the south-east extremity of the island, 12 miles east of Mazzara, in the province of Trapani. It is well and regularly built, and has a population of about 20,000, many of whom are hereditary tenants of the dukes of Monteleone, who have a palace in the town. Near it are the ruins of the ancient city *Selinus*, which was destroyed by the Carthaginians 409 B.C.

CASTELL, EDMUND, a learned English Orientalist, was born about 1606, and died in 1665.

CASTELLI, IGNAZ FRIEDRICH, dramatist, was born on March 6, 1781, at Vienna, and died in 1862.

CASTELLO, BERNARDO (1557-1629), a Genoese portrait and historical painter, born at Albaro near Genoa, was the intimate friend of Tasso, and took upon himself the task of designing the figures of the *Gerusalemme Liberata*, published in 1590; some of these subjects were engraved by Agostino Caracci.

CASTELLO, GIOVANNI BATTISTA (1500-1569), an eminent Italian historical painter, was born in Bergamo, and is hence ordinarily termed Il Bergamasco.

CASTELLO, VALERIO (1625-1659), was the youngest son of Bernardo Castello, noticed above. He surpassed his father, and particularly excelled in painting battle-scenes.

CASTELLON DE LA PLANA, a town of Valencia, in Spain, the capital of a modern province, is situated about 4 miles from the sea, and 40 miles N.N.E. of Valencia. It derives its name from the extensive plain in which it is situated, and which is watered artificially by an aqueduct brought for the most part through solid rock from the Mijares, a stream about five miles distant. Population, 20,123.

CASTELNAU, MICHEL DE, SIEUR DE LA MAUVISSIÈRE (c. 1520-1592), a French soldier and diplomatist, ambassador to Queen Elizabeth, was born in Touraine about 1520. He was one of a large family of children, and his grandfather, Pierre de Castelnau, was

equerry to Louis XII. Endowed with a clear and penetrating intellect and remarkable strength of memory, he received a careful education, and made rapid progress in his studies. To complete his education he travelled in Italy and made a long stay at Rome. He then spent some time in the Island of Malta, afterwards entered the army, and made his first acquaintance with the art of war in the chequered campaigns of the French in Italy. His abilities and his courage won for him the friendship and protection of the cardinal of Lorraine, who took him into his service. In 1557 a command in the navy was given to him, and the cardinal proposed to get him knighted. This, however, he declined, and then rejoined the French army in Picardy. Various delicate missions requiring tact and discretion were entrusted to him by the constable de Montmorency, and these he discharged so satisfactorily that he was sent by the king, Henry II., to Scotland, with despatches for Mary Stuart, then betrothed to the Dauphin (afterwards Francis II). From Scotland he passed into England, and treated with Queen Elizabeth respecting her claims on Calais (1559), a settlement of which was effected at the congress of Cambrai. Castelnau was next sent, with the title of ambassador, to the princes of Germany, for the purpose of prevailing upon them to withdraw their favor from the Protestants. This embassy was followed by missions to Margaret of Parma, governess of the Netherlands, to Savoy and then to Rome, to ascertain the views of Pope Paul IV. with regard to France. Paul having died just before his arrival, Castelnau used his influence in favor of the election of Pius IV. Returning to France he once more entered the navy, and served under his former patron. It was his good fortune, at Nantes, to discover the earliest symptoms of the conspiracy of Amboise, which he immediately reported to the Government. After the death of Francis II. (December 1560), he accompanied the queen, Mary Stuart, to Scotland, and remained with her a year, during which time he made several journeys into England, and attempted to bring about a reconciliation between Mary and Queen Elizabeth. The wise and moderate counsels which he offered to the former were unheeded. In 1562, in consequence of the civil war in France, he returned there. He was employed against the Protestants in Brittany, was taken prisoner in an engagement with them and sent to Havre, but was soon after exchanged. In the midst of the excited passions of his countrymen, Castelnau, who was a sincere Catholic, maintained a wise self-control and moderation, and by his counsels rendered valuable service to the Government. He served at the siege of Rouen, distinguished himself at the battle of Dreux, took Tancarville, and contributed in 1563 to the recapture of Havre from the English. During the next ten years Castelnau was employed in various important missions;—first to Queen Elizabeth, to negotiate a peace; next to the duke of Alba, the new governor of the Netherlands. On this occasion he discovered the project formed by Condé and Coligny to seize and carry off the royal family at Monceaux (1567). After the battle of St. Denis he was again sent to Germany to solicit aid against the Protestants; and on his return he was rewarded for his services with the post of governor of Saint-Dizier, and a company of orderlies. At the head of his company he took part in the battles of Jarnac and Moncontour. In 1572 he was sent to England by Charles IX., to allay the excitement created by the massacre of St. Bartholomew; and the same year he was sent to Germany and Switzerland. Two years later he was reappointed by Henry III. ambassador to Queen Elizabeth, and he remained at her court for ten years. During this period he used his influence to

promote the marriage of the queen with the duke of Alençon, with a view especially to strengthen and maintain the alliance of the two countries. But Elizabeth made so many promises only to break them that at last he refused to accept them or communicate them to his Government. On his return to France he found that his château of La Mauvissière had been destroyed in the civil war; and as he refused to recognize the authority of the League, the duke of Guise deprived him of the governorship of Saint-Dizier. He was thus brought almost to a state of destitution. But on the accession of Henry IV., the king, who knew his worth, and was confident that although he was a Catholic he might rely on his fidelity, gave him a command in the army, and entrusted him with various confidential missions. Castelnau died at Joinville in 1592. The *Mémoires* left by this great diplomatist rank very high among the original authorities for the period they cover, the eleven years between 1559 and 1570. They were written during his last embassy in England for the benefit of his son; and they possess the merits of clearness, veracity, and impartiality.

CASTELNAUDARY, the chief town of an arrondissement in the department of Aude, in France, 21 miles north-west of Carcassonne. Population, 8,946.

CASTELO BRANCO (*i.e.*, White Castle), a town and bishop's seat of Portugal, in the province of Beira, on a hill near the Liria, 64 miles east by south of Coimbra. It is surrounded by walls flanked by towers, and has a ruined castle on the summit of the hill. Population about 5580.

CASTI, GIOVANNI BATTISTA (1721–1803), an Italian poet, was born of humble parents at Montefiascone, in the States of the Church, in 1721. He rose to the dignity of canon in the cathedral of his native place, but gave up his chance of church preferment to satisfy his gay and restless spirit by visiting most of the capitals of Europe. Casti is best known as the author of the *Novelle Galanti*, and of *Gli Animali Parlanti*, a poetical allegory, over which he spent eight years (1794–1802), and which, notwithstanding its tedious length, excited so much interest that it was translated into French, German, and Spanish, and (very freely and with additions) into English in W. S. Rose's *Court and Parliament of Beasts* (Lond. 1819).

CASTIGLIONE DELLE STIVIERE, a town of Italy, in the province of Brescia, 20 miles north-west of Mantua. In 1796 the Austrians, under Wurmser, were defeated there by Marshal Augereau, who was afterwards rewarded by Napoleon with the title of duke of Castiglione. Population, 5237. This town must not be confounded with Castiglione Fioretino, a flourishing township, about 11 miles south of Arezzo by rail, which is chiefly engaged in the culture of the silkworm.

CASTIGLIONE, BALDASSARE (1478–1529), diplomatist and man of letters, was born at Casatico near Mantua, and was educated at Milan under the famous professors Merula and Chalcondyles. In 1496 he entered the service of Lodovico Sforza, duke of Milan, returning to Mantua in 1500 when Lodovico was carried prisoner into France. In 1504 he was attached to the court of Guidobaldo Malatesta, duke of Urbino, and in 1506 he was sent by that prince on a mission to Henry VII. of England, who had before conferred on Federigo Malatesta, "the Good Duke," the most famous mercenary of his age, the order of the Garter. Guidobaldo dying childless in 1508, the duchy of Urbino was given to Francesco Maria della Rovere, for whom Castiglione, envoy at the court of Leo X. (Medici), obtained the office of generalissimo of the Papal troops. Charged with the arrangement of the

dispute between Clement VII. (Medici) and Charles V., Castiglione crossed, in 1524, into Spain, where he was received with highest honors, being afterwards naturalized, and made bishop of Avila. In 1527, however, Rome was seized and sacked by the Imperialists under Bourbon, and in the July of the same year the surrender of the castle of Sant' Angelo placed Clement in their hands. Castiglione had been tricked by the emperor, but there were not wanting accusations of treachery against himself. He had, however, placed fidelity highest among the virtues of his ideal "courtier;" and when he died at Toledo in 1529, it was said that he had died of grief and shame at the imputation. The emperor mourned him as "one of the world's best cavaliers." A portrait of him, now at the Louvre, was painted by Raphael, who disdained neither his opinion nor his advice.

Castiglione wrote little, but that little is of rare merit. His verses, in Latin and Italian, are elegant in the extreme; his letters are full of grace and finesse. But the book by which he is best remembered is the famous treatise, *Il Cortegiano*, written in 1514. This book, called by the Italians *Il Libro d'Oro*, and remarkable for its easy force and undemonstrative elegance of style no less than for the nobility and manliness of its theories, describes the Italian gentleman of the Renaissance, under his brightest and fairest aspect, and gives a charming picture of the court of Guidobaldo da Montefeltre, duke of Urbino, "confessedly the purest and most elevated court in Italy."

CASTIGLIONE, GIOVANNI BENEDETTO (1616-1670), currently named in Italy Il Grechetto, and in France Le Benédette, a painter of the Genoese School, was born in Genoa, and studied for some time under Vandyck. He painted portraits, historical pieces, and landscapes, but chiefly excelled in fairs, markets, and rural scenes with animals.

CASTIGLIONE, CARLO OTTAVIO, COUNT (1784-1849), an Italian philologist of considerable reputation, was born at Milan of ancient family. His principal work was done in connection with the Arabic and other Oriental languages; but he also performed good service in several other departments.

CASTILE (in Spanish, *castilla*), an ancient kingdom of Spain occupying the central districts of the peninsula. For its history as a separate kingdom see the article SPAIN. The name Castile is derived from the existence of numerous forts (*castillos*) erected on the frontiers to afford protection from enemies. The northern part of the old kingdom, which was first rescued from the Moors, is called *Castilla la Vieja*, or Old Castile; the southern, more recently acquired, is called *Castilla la Nueva*, or New Castile. The length of Castile from north to south is about 300 miles; the breadth, about 160 miles; and the total area about 45,000 square miles, or nearly one-fourth that of Spain.

Old Castile is bordered on the N. by the Bay of Biscay, on the E. and N.E. by Biscay, Alava, Navarre, and Aragon, on the S. by New Castile, and on the W. by Leon and Asturias. It is divided into the provinces of Burgos, Logroño, Santander, Soria, Segovia, Avila, Palencia, Valladolid, and has an area of 25,409 square miles, and a population estimated at 1,690,000 inhabitants. The country consists of vast plains, which form, between the Cantabrian chain in the north and the chain of Sierras stretching south-west from Aragon to Estremadura, a great table-land, of a height between 2500 and 4000 feet above the sea. The principal rivers are the Douro and the Ebro. The plains are barren and dry, with scarcely a tree, meadow, or spring of water; but the hills bordering the mountain ranges are well clothed with oak-forests. The climate is healthy, but

subject to great extremes of cold and heat; frosts in the higher regions may last three months at a time. The soil is productive, but poorly cultivated; the harvests of wheat, however, are abundant. Wine and oil of inferior quality, and madder, are produced in considerable quantity, but fruits are scarce except at Bureba. The export trade is chiefly in wool, cattle, sheep, and wheat. The bad state of the roads, (which are often impassable for mules), the insufficiency of railway communication, and the neglected condition of the Port of Santander, are great obstacles to commerce.

New Castile is bounded on the N. by Old Castile, on the E. by Aragon and Valencia, on the S. by La Mancha, on the W. by Estremadura. It forms the southern portion of the great central table-land of Spain, and comprises the provinces of Madrid, Toledo, Guadalajara, and Cuenca. The total area is 20,178 square miles, inhabited by a population estimated in 1889 at 1,300,000. The principal mountain ranges are the Sierra Guadarama in the north, and the Sierra Morena in the south. The chief rivers are the Tagus, Guadiana, Guadalquivir, Segura, and Xucar. The climate is more rigorous than that of Old Castile, and the mean temperature, on account of the elevation of surface, is not more than 59°; but the heat in summer is extreme in the valleys. The rainfall is not more than 10 inches in a year; the winds are dry and violent. The whole country presents the aspect of a barren dusty steppe, with patches of olive-trees here and there, and wheat, pea, and saffron fields. During the rainy season the vegetation is very luxuriant; but agriculture is in a backward state; the soil is fertile, but the rivers are not used for its irrigation. The total quantity of wheat raised is barely sufficient for the wants of the population. Hemp and flax and olive-trees are cultivated. Timber and fire-wood are becoming dearer, as the country is very little wooded. Honey is gathered in considerable quantities; and sheep, oxen, and mules are reared in great numbers. Iron, salt, and quicksilver are worked; the mineral resources are good, but ill developed. The manufactures are chiefly of woollen goods, plain and figured velvets, silks, satins, calicoes, stockings, earthenware, and cutlery.

The inhabitants of both Old and New Castile are a loyal and manly race, preserving the primitive simplicity and pure Spanish, as well as the pride, of their forefathers. They are uneducated and inclined to bigotry, but naturally shrewd and intelligent. The tillage of the land and the pasturing of sheep are their chief employments.

CASTILLEJO, CHRISTOBAL DE (1494-1556), was born, according to Moratin, in Ciudad-Rodrigo.

Castillejo was a voluminous writer of verse. His poems are worthy of note, not only on account of their intrinsic merit, but also as being the last manifestation of importance of the older Spanish School of poetry against the younger section under the leadership of Garcilaso de la Vega.

His satires were treated exceedingly ill, on account of his strong anti-clerical feelings, by the officers of the Inquisition, who did not scruple to excise large portions of them, and to fill up the gaps thus caused with screeds of a contrary tendency, the work of their own hack-rhymesters, who had at this period a great deal of work to do of the same sort.

CASTING. See FOUNDING.

CASTLE (Saxon *castel*, Latin *castellum*, diminutive from *castrum*, whence the French *château* and *chatel*, as in Neufchatel), an encampment, a fortress or place rendered defensible either by nature or art. The term is also often applied to the principal mansion of a prince or nobleman.

The frequent and protracted wars between neighboring tribes and peoples which took place in early times must soon have rendered evident the expediency of erecting forts. These at first consisted only of earthen ramparts or rows of palisades, situated mostly on commanding eminences. With improved methods of assault and the advance of constructive art came erections of wood and stone, which by and by were flanked with towers and surrounded by a wall and ditch. Increased mechanical and architectural skill, while it made little alteration on the fundamental plan of such buildings, gradually introduced numerous contrivances for repelling assault, and rendering a great castle well-nigh impregnable.

Confining our narrative of the progress of castle-building to Britain, we notice first the hill-forts which are ascribed to the ancient Britons. Typical examples of them are the Herefordshire Beacon on the Malvern Hills, and the Barmekin of Echt in Aberdeenshire. The latter consists of the remains of two circular dry stone walls surrounded by three ditches. The inner wall seems to have been about 12 feet thick, and 300 yards in circumference, and contains five entrances, all in an oblique direction. The outer wall, which is said to be more modern than the inner, is much more entire, and has no entrances through it. The ditches are about 9 feet broad.

Regarding the castles built by the Saxon invaders our knowledge is scanty. They were probably not very numerous, and some of them were built principally of wood. Alfred, who did so much for the defence of the country, constructed several strongholds which his successors do not seem to have kept up or improved. At all events they offered little resistance to William the Norman, who, in order effectually to guard against invasions from without as well as to awe his newly-acquired subjects, immediately began to erect castles all over the kingdom, and likewise to repair and augment the old ones. Besides, as he had parcelled out the lands of the English amongst his followers, they, to protect themselves from the resentment of the despoiled natives, built strongholds and castles on their estates, and these were multiplied so rapidly that towards the latter end of the reign of King Stephen they amounted to 1115.

As the feudal system gathered strength, the lords of castles began to arrogate to themselves a royal power, not only within their castles, but likewise in their environs,—exercising judicature both civil and criminal, coining money, and arbitrarily seizing forage and provisions for the subsistence of their garrisons, which they afterwards demanded as a right. Their insolence and oppression grew to such a pitch that, according to William of Newbury, “there were in England as many kings, or rather tyrants, as lords of castles;” and Matthew Paris emphatically styles them “nests of devils and dens of thieves.” The licentious behavior of the garrisons having at length become intolerable, it was agreed in the treaty between Stephen and Henry II., when the latter was duke of Normandy, that all the castles built within a certain period should be demolished; in consequence of which many were actually razed, but not the number stipulated.

The style of castle erected in England after the Conquest seems to have been that of buildings of a similar kind in France. Like them, the Norman castle was commonly situated on an eminence, or on the bank of a river. The whole site of the castle, which was frequently of great extent and irregular figure, was surrounded by a deep and broad ditch, called the moat or fosse, which could be easily filled with water or left dry. In some of the later castles, before the principal en-

trances was placed an outwork called the barbican, which was a high wall surmounted by battlements and occasionally turrets to defend the gate and the draw-bridge, which communicated therewith. The draw-bridge across the moat was constructed of wood, and, by means of chains and weights, could be pulled up against the entrance, thus cutting off all communication with the outside. On the inside of the moat stood the outer bailey wall, about 8 or 10 feet thick, and from 20 to 30 feet high, surmounted by a parapet not less than 1 foot thick, with crenellated embattlements or embrasures. This parapet afforded protection to the defenders of the castle, who stood upon the wall, and through the crenelles discharged arrows, darts, and stones at the besiegers. On the wall, and projecting out from it, were built at proper distances square or round towers, sometimes called bastions, generally one story higher than the wall so as to command it. The lower story of the walls and towers was often built with a batter, or slope outwards to strengthen, and also to keep the assailants farther from the walls. Thus the defenders were not compelled to lean far over the parapet, and expose their bodies to the archers of the enemy who were placed at a distance to guard those engaged in undermining the walls. In one of the towers and sometimes in the wall near a tower was the postern gate at a considerable distance from the ground. This gate was used for the egress of messengers during a siege. The principal entrance or main gate of the castle was of great strength, and was usually flanked with strong towers having embattled parapets. It was made of wood, cased with iron, and was rendered doubly secure by an iron portcullis which slid downwards in grooves in the masonry. Within the outer wall was a large open space or court called the outer bailey, bayle, or ballium, in which stood commonly a church or chapel. On the inside of the outer bailey and surrounded by a ditch stood another wall and parapet, with gate and towers similar to those on the outer wall. Round the inside of this inner wall were arranged the offices for the servants and retainers, the granaries, storehouses, and other necessary buildings. These constituted the inner bailey. Within all these was the keep, built sometimes on an artificial mound. It was a large, high, square or rectangular tower more strongly fortified than any of the other parts of the castle, and was the last resort of the garrison when all the outworks were taken. Its walls, from 10 to about 20 feet in thickness at the base, and diminishing towards the top, on which was placed an embattled parapet, often admitted of chambers and staircases being constructed in them. On each side of the keep there was usually a flat Norman buttress, and at the corners were embattled turrets carried one story higher than the parapet, as may be seen in the keeps of Rochester, Newcastle, &c.

The entrance was on the first floor, and was reached by an open flight of steps, which could be readily defended, or by a staircase in a turret at one of the angles. The interior was divided by a strong middle partition wall, in which were openings for communication with the different apartments. In this wall was the well of the castle, often of great depth, and with a shaft ascending through all the stories to the top of the keep. The several floors were of stone or wood. The basement floor contained the store-rooms and the dungeon for prisoners, and had no lights from the outside. On the first floor were situated the soldiers' apartments, guard-room, &c., lighted only by small loopholes. The second floor was taken up by the baronial hall in which the baron or governor and his retainers dined. The third floor contained, probably, the chapel and apartments of the governor and his family. The two upper floors were lighted by small round-headed Norman windows. Although

there were unquestionably great variations in the structure of castles, yet the most perfect of them were built on the plan above described.

The towers along the outer bailey (such as Avranches tower, Marshall's tower, and the Constable's tower in Dover Castle) were, in the case of royal castles, each protected by men of approved fidelity and valor, to whom estates were granted on condition of their performing castle-guard. Each had also to keep his particular tower in repair, and supply the requisite number of men to defend it during a siege. In process of time these services were commuted for annual rents, sometimes styled wardpenny and waytfee, but commonly castle-guard rents, payable on fixed days, under prodigious penalties called sursizes.

The Scotch castles were in general square or rectangular keeps or peels, and depended for their security greatly upon their size. Some of them were situated on precipitous rocks on the seacoast, such as Fast, Tantallon, Dunottar; others on islands in the lake or river, such as Lochleven and Threave. Edinburgh and Stirling castles, like many others in England and on the Continent, illustrate well one of the functions often discharged by fortresses, that of forming a nucleus for a village or city.

CASTLEBAR, a town of Ireland, the capital of the county Mayo, situated on the river of the same name, 159 miles west by north of Dublin. Population, 5,000.

CASTLE GARDEN, originally Castle Clinton, a round fort (1807) built 300 yards out from the south end of Manhattan Island, was in 1824 converted into a place of amusement, in 1839 planted with trees, turf, and flowers, in 1847 transformed into an opera house, and in 1858 made the immigration depot of New York.

CASTLEREAGH, LORD. See LONDONDERRY, MARQUIS OF.

CASTLETOWN (in Manx, BULLY CASHTEL), the capital of the Isle of Man, and seat of the Manx Government, stands on the western side of Castletown Bay, eleven miles southwest of Douglas, on both banks of Silverburn. Population (1890), 3,600.

CASTOR AND POLLUX, in Greek and Roman mythology, were twin gods, also known under the name of Dioscuri (Jupiter, children), for, according to one myth, they were children of Jupiter and Leda, whose love the god had won under the form of a swan. In some versions Leda is represented as having brought forth two eggs, from one of which were born the mortal babes Castor and Clytæmnestra, from the other the immortal Pollux or Polydeuces and Helen. According to others only the latter two were children of Zeus, and in Homer all are said to be children of Leda and Tyn-dareus, king of Sparta. We find also that the Dioscuri were specially revered among people of Dorian race, and that they were said to have reigned at Sparta.

The Dioscuri presided over public games, Castor being the god of equestrian exercise, Pollux the god of boxing; but both are usually represented on fiery steeds with spears and egg-shaped helmets crowned with stars. They were, besides, the patrons of hospitality; their willing and kindly aid was especially sought by travelers; they were ever ready to befriend all who paid them due honor. Their most important exploits are their invasion of Attica, to rescue their sister Helen from Theseus; their share in the hunting of the Calydonian boar, and in the Argonautic expedition, during which they married the daughters of Leucippus; and, lastly, their battle with the sons of Aphareus, in which Castor, the mortal, fell by the hand of Idas. Pollux, finding him dead after the battle, implored Jupiter to be allowed to die with him; but the father of the gods (says Homer) gave his

brother life, on condition that both should, on alternate days, descend to Hades. According to another fable, the god marked his approval of their love by placing them together among the stars.

CASTOREUM, a soft brown substance, of peculiar smell, secreted by two glands, associated with the reproductive organs in both sexes of beaver. It is used chiefly by perfumers.

CASTORIDÆ, a family of rodent mammals, in the squirrel-like section, represented by the genus *Castor* with a single species, the familiar beaver (*Castor fiber*).

CASTOR OIL, the fixed oil obtained from the Castor Oil Plant or Palma Christi, *Ricinus communis*, belonging to the natural order *Euphorbiaceæ*. The oil is obtained from the seeds by two principal methods—expression and decoction—the latter process being largely used in India, where the oil, on account of its cheapness and abundance, is extensively employed for illuminating as well as for other domestic and medicinal purposes. The oil exported from Calcutta to Europe, which is said to be “cold drawn and nearly tasteless,” is prepared by shelling and crushing the seeds between rollers. The crushed mass is then placed in hempen cloths and pressed in a screw or hydraulic press. The oil which exudes is mixed with water and heated till the water boils, and the mucilaginous matter in the oil separates as a scum. It is next strained, then bleached in the sunlight, and stored for exportation. A considerable quantity of castor oil of an excellent quality is also made in Italy; and in California the manufacture is conducted on an extensive scale. The following is an outline of the process adopted in a California factory. The seeds are submitted to a dry heat in a furnace for an hour or thereby, by which they are softened and prepared to part easily with their oil. They are then pressed in a large, powerful screw-press, and the oily matter which flows out is caught, mixed with an equal proportion of water, and boiled to purify it from mucilaginous and albuminous matter. After boiling about an hour, it is allowed to cool, the water is drawn off, and the oil is transferred to zinc tanks or clarifiers capable of holding from 60 to 100 gallons. In these it stands about eight hours, bleaching in the sun, after which it is ready for storing. By this method 100 pounds of good seeds yield about five gallons of pure oil.

Castor oil is a viscid liquid, almost colorless when pure, possessing only a slight odor, and a mild yet highly nauseous and disagreeable taste.

It is one of the most extensively useful of purgative medicines known; and the only one which, under certain circumstances, can with safety be administered.

CASTREN, MATTHIAS ALEXANDER (1813–55), one of the greatest authorities on the ethnology and languages of the Northern Asiatic nations, was born at Tervola, in the parish of Kemi, in Finland, on November 20 (December 2), 1813. On his removal to Alexander's University at Helsingfors, in 1830, he first devoted himself to Greek and Hebrew with the intention of entering the church; but his interest was soon excited by the language of his native country, and he even began before his course was completed to lay the foundations of a work on Finnish mythology. The necessity of personal explorations among the still unwritten languages of cognate tribes soon made itself evident; and in 1838 he was glad to join a medical fellow-student, Dr. Ehrström, in a journey through Lapland. In the following year he traveled in Russian Karelia at the expense of the Literary Society of Finland; and in 1841 he undertook, in company with Dr. Elias Lönnrot, the great Finnish philologist, a third journey, which ultimately extended beyond the Ural as far as Obdorsk, and occupied a period of three years.

In 1843 he set out, under the auspices of the Academy of St. Petersburg and the Helsingfors University, on an exploration of the whole government of Siberia, which resulted in a vast addition to previous knowledge, but seriously affected the health of the adventurous investigator. In 1850 he published a treatise *De affixis personalibus linguarum Altaicarum*, and was appointed professor at Helsingfors of the new chair of Finnish language and literature. The following year saw him raised to the rank of chancellor of the university; and he was busily engaged in what he regarded as his principal work, a Samoyedic Grammar, when he died on May 7, 1853.

CASTRENSIS, PAULUS, a distinguished professor of civil and canon law, was born in Italy in 1371, and died in 1441.

CASTRES, the chief town of an arrondissement in the department of Tarn, France, twenty-three miles southeast of Alby, stands in a pleasant and fertile valley, on both sides of the Agout, here crossed by two bridges. Dacier, Rapin, and Sabatier were natives of the town. Castres grew up round a Benedictine abbey, which is believed to have been founded in the ninth century. It was a place of considerable importance as early as the twelfth century, and ranked as the second town of the Albigenes. Population, 18,177 in the town, and 23,461 in the commune.

CASTRO, a seaport town of Italy, in the province of Otranto, and ten miles southwest of the city of that name. Population, 6,000.

CASTRO DEL RIO EL REAL, a town of Spain in the province of Cordova. Population, 9,000.

CASTRO GIOVANNI, the ancient *Enna*, a town of Sicily, in the province of Caltanissetta, about a quarter of a mile south of Caltascibetta, which is situated on the railway between Catania and Girgenti. It lies almost in the centre of the island, and occupies a well-nigh impregnable position on the irregular but spacious summit of a hill which rises in precipitous cliffs to a height of 2790 feet. The town is said by Stephanus of Byzantium to have been founded by Syracuse in the 7th century B.C.; but it first appears in history as a Sicilian city. It fell into the hands of Dionysius of Syracuse in 403; and it was afterwards subject to Agathocles. In 309 it was one of the first cities to join the Agrigentines in the war of liberation. During the first Punic war it was held for some time by the Carthaginians, and subsequently betrayed to the Romans; and during the second it was delivered to massacre and plunder by the Roman governor Pinarius, who feared a revolt of the citizens. As headquarters of the insurrection of the slaves from 134 to 132 B.C., it defied the consul Rupilius till treachery came to his aid. From the spoiliations of Verres it suffered severely, and its importance gradually diminished under the empire. In 837 the Saracens made a vain attempt to take it by storm; but in 859 it was betrayed into the hands of Abbas ibn Fahdl. In 1080 the Normans entered into possession, and the proof of their occupation is still to be found, not only in the remains of their buildings, but also in the light hair and blue eyes of many of the present inhabitants. Of Roman architecture there are few remains, and the identification of the ancient site assigned to the myth of the Rape of Proserpine rests on very uncertain evidence. The present form of the name Castro Giovanni appears to have arisen simply from an erroneous interpretation of the Sicilian Castro Janni, which is really nothing more than *Castrum Ennæ*. Population, about 14,000.

CASTRO NUOVO, a town of Sicily, in the province of Palermo, 25 miles north of Girgenti. In the vicinity there are extensive quarries of colored marble, which

have been worked since the time of the Romans. Population, 4300.

CASTRO REALE, a city of the province of Messina, in the Island of Sicily, situated on a triangular and rocky mountain about 11 miles south of Milazzo. The climate is salubrious; and excellent wine and oil are produced in the district. Population, about 7700.

CASTRO URDIALES, a seaport town of Spain, in the province of Santander, well known to sailors for the shelter which it affords from storms in the Bay of Biscay. Population (1890), 3,600.

CASTRO, GUILLEN DE (1569-1631), a Spanish dramatist of note, was a Valencian by birth, and early enjoyed a reputation as a man of letters. In 1591, with Aguilar and Artieda, he was a member of the *Nocturnos*, a brilliant Spanish imitation of the Italian *Accademia*. The drama that has made Guillen de Castro's reputation European is *Las Mocedades del Cid*, to the first part of which Corneille was so largely indebted for the materials of his own renowned tragedy. The two parts of this play, like all those of Castro, have the genuine ring of the old songs of the *Romanceros* about them; and from their intense nationality, no less than for their rough poetry and sweet versification, were, doubtless, among the most popular pieces of their day.

CASTRO, INEZ DE (died 1355), called *Collo de Garza* i.e., "Heron's Neck," was born in Spanish Galicia, in the earlier years of the 14th century. Tradition asserts that her father, Don Pedro Fernandez de Castro, and her mother, Doña Aldonça Soares de Villadares, a noble Portuguese lady, were unmarried, and that Inez and her two brothers were consequently of bastard birth. Educated at the semi-Oriental provincial court of Juan Manuel, duke of Peñafiel, Inez grew up side by side with Costança, the duke's daughter by a scion of the royal house of Aragon, and her own cousin. After refusing several crowned heads in marriage, Costança was at last persuaded to accept the hand of the Infante Dom Pedro, son of Alphonso the Proud, king of Portugal. In 1431 the two girls left Peñafiel; Costança's marriage was celebrated in the same year, and the young Infanta and her cousin went to reside at Lisbon, or at Coimbra, where Dom Pedro conceived that luckless and furious passion for Inez which has immortalized them.

Morganatic marriages among the great were rather the rule than the exception in those times. The only person, therefore, who suffered in the contemplation of the lawless alliance between the Infante and Inez was Costança. In 1345, however, the Infanta died in child-bed, and the widower was left in undisturbed possession of his mistress. A wayward violent man, bold and irresolute, of terrible passions, but subject to strange lapses of will, Dom Pedro, doubtful, perhaps, of the illegitimacy of Inez, which debarred her from succession to the throne, took no steps to improve her position to the world's eye till 1354, nine years after Costança's death, when he married her in presence of the bishop of Guarda, and of several of the members of their household. No contract of marriage, however, nor documentary proof of any kind was created for this extraordinary occasion. In 1361 Dom Pedro, then king of Portugal, swore solemnly to Castanhede, that he had been lawfully wedded to Inez; but in 1385 João De Regras had no difficulty whatever, in the absence of written evidence, in setting aside the title of her descendants to the throne.

Alphonso the Proud feared for his grandchild and his kingdom's peace. The Castro family, as much dreaded in Spain as in Portugal, with Inez ready to mount the throne and her brother Pedro Fernandez de Castro rising daily higher in popularity and importance, had many enemies,—among others, three gentlemen, Alvaro

Gonçalves, Pedro Coelho, and Diogo Lopes Pacheco. These men, hateful to and fearful of Pedro Fernandez, are said to have used their influence with Alphonso to persuade him to strike down the family through Inez. The old king listened, refused, wavered, and ended by yielding. He went in secret to the palace at Coimbra, where Inez and the Infante resided, accompanied by his three familiars, and by others who agreed with them. The beauty and tears of Inez disarmed his resolution, and he turned to leave her; but the gentlemen about him had gone too far to recede. Inez was stabbed to death, and was buried immediately in the Church of Santa Clara.

The Infante raised at once the flag of revolt against his father, and was only appeased by the concession of a large share in the government. The three murderers of Inez were sent out of the kingdom by Alphonso, who knew his son too well not to be aware that the vengeance would be tremendous as the crime. They took refuge in Castile. In 1357, however, Alphonso died, and the Infante was crowned king of Portugal. Pedro the Cruel, his nephew, reigned over Castile; and the murderers were given up as soon as required. Diogo Lopes escaped through the gratitude of a beggar to whom he had formerly done a kindness; but Coelho and Gonçalves were executed, with horrible tortures, in the very presence of the king.

CASTRO, JOÃO DE (1500-1548), called by Camoens *Castro Forte*, fourth viceroy of the Portuguese Indies, was the son of Alvaro de Castro, civil governor of Lisbon. A younger son, and destined therefore for the church, he became at an early age a brilliant humanist, discovering also a profound capacity for mathematics. The latter he studied under Pedro Nunez, in company with the Infante Dom Luis, son of Emmanuel the Great, with whom he contracted a life-long friendship. At eighteen he went to Tangiers, where he was dubbed knight by Duarte de Menezes the governor, and where he remained several years. In 1535 he accompanied Dom Luis to the siege of Tunis, where he had the honor of refusing knighthood and reward at the hands of the great emperor Charles V. Returning from Lisbon he received from the king the small commandship of São Pablo de Salvaterra in 1538. He was exceedingly poor, but his wife Lenor de Coutinho, a noble Portuguese lady, the exact date of whose marriage with him is not known, admired and appreciated her husband sufficiently to make light of their poverty. Soon after this he left for the Indies in company with his uncle Garcia de Noronha, and on his arrival at Goa enlisted among the *aventureiros*, "the bravest of the brave," told off for the relief of Diu. In 1540 he served on an expedition under Estabão de Gama, by whom his son, Alvaro de Castro, a child of thirteen, was knighted, out of compliment to him. Returning to Portugal, João de Castro was named commander of a fleet, in 1543, to clear the European seas of pirates; and in 1545 he was sent, with six sail, to the Indies, in the room of Martin de Souza, who had been dismissed the viceroyalty. The next three years were the hardest and most brilliant, as they were the last, of this great man's life, — years of battle and struggle, of glory and sorrow, of suffering and triumph. Valiantly seconded by his sons (one of whom, Fernão, was killed before Diu) and by João Mascarenhas, João de Castro achieved such popularity by the overthrow of Mahmoud, king of Cambodia, by the relief of Diu, and by the defeat of the great army of Adhel Khan, that he could contract a very large loan with the Goa merchants on the simple security of his moustache. These great deeds were followed by the capture of Broach, by the complete subjugation of Malacca, and by the pass-

age of Antonio Moniz into Ceylon; and in 1547 the great captain was appointed viceroy by João III., who had at last accepted him without mistrust. He did not live long to fill this charge, expiring in the arms of his friend, St. Francis Xavier, 6th June of the following year. He was buried at Goa, but his remains were afterwards exhumed and conveyed to Portugal, to be reinterred under a splendid monument in the convent of Bemfica.

CASTROVILLARI, a town of Italy, in the province of Calabria Citra. Population, 9,500.

CASTRUCCIO CASTRACANI (1283-1328) was by birth a Lucchese, and by descent and training a Ghibelline. He belonged to a family of Antelminelli; and being exiled at an early age with his parents and others of their faction by the Guelfs, then in the ascendant, and orphaned at nineteen, he served as a soldier in England, France, and Lombardy, till he returned to Italy in 1313, and was chosen chief by the Ghibellines, who had again obtained the mastery. To avenge himself on the vanquished faction he called in Ugucione da Faggiuola, lord of Pisa, who treated him ill and perfidiously, putting him in irons and sacking the city of Lucca, in spite of strenuous support received from Castruccio in many arduous enterprises, particularly in that of Montecatini. An insurrection of the Lucchese leading to the expulsion of Ugucione and his party, Castruccio regained his freedom and his position, and the Ghibelline triumph was presently assured. Elected governor of Lucca in 1316, he warred incessantly against the Florentines, — becoming the faithful adviser and staunch supporter of the Emperor Louis V., whom he accompanied to Rome, and who made him duke of Lucca, count of the Lateran Palace, and senator of the empire. Castruccio was excommunicated with his master by the Papal Legate, in the interest of the Guelfs, and died soon afterwards, leaving several young children, whose fortunes were wrecked in the Guelfic triumph consequent on their father's death.

CASUISTRY is the application of general moral rules to particular cases, but the word is specially limited to the consideration of cases of possible dubiety, since it is only where difficulty exists that formal treatment is necessary. Any important development of casuistry can only take place under a government by laws expressed in definite precepts; but the development may have its origin in either of two opposite causes, or in a combination of the two — in the desire, namely, to fulfil the laws, or in the desire to evade them, or in a conflict of these desires.

Of these principles a remarkable illustration is given by the Jews. Governed as they were by the written precepts of Moses, they were continually confronted by questions which did not clearly come under any one rule, but of which a solution was required by their extreme reverence for the smallest dicta of their code. This worship of every jot and tittle of the law, which was the most remarkable characteristic of their conscientiousness, determined the nature of their casuistry. It was exact, detailed, unbending, and, though often wise and noble, often useless and merely external. Thus it forbade the wearing of a girdle on the Sabbath, decided to a yard how far one might walk on that day, and declared the consequences of an oath by the gift on the altar to be most serious, while an oath by the altar itself was perfectly safe. Its loosest requirements were those which concerned marriage, for it was practically possible to divorce a wife at will. Of these rules some may be found in the Apocrypha, but their great repository is the encyclopædic Talmud, which entered into the minutiae of conduct with a detail which tended to prevent real obedience to great laws, and which was disas-

trous to individual freedom. It must, however, be remembered in considering the religious casuistry of the Jews that—as is also remarkably the case with the Mahometans—their religious code was intended to be at the same time their civil law, and that, consequently, part of their casuistry is comprised in our law-books. In fact, the task of our judges is to solve questions of legal casuistry, and the precedents which they make are, so far, comparable to the traditions of the elders.

One of the most favorable conditions for the growth of a system of casuistry is that in which a people, having lost its reverence for the law it once held supreme, and ceased to find obedience tolerable, does not yet dare to deny its authority. Such was the condition in which, during the 16th century, there took place the worst development of casuistry which the world has seen. Men no longer were willing that their liberty should be repressed by the dead rules of a corrupt church, and the Jesuits, animated by the single object of adding to the power of their order, were always ready to make concessions and to soften disagreeable requirements. The most remarkable doctrine which they promulgated—a doctrine which it is hard to believe that any one ever ventured to assert—is that of “Probabilism,” according to which any opinion which has been expressed by a “grave doctor” may be looked upon as possessing a fair amount of probability, and may, therefore, be safely followed, even though one’s conscience may insist upon the opposite course. With principles so liberal it was hard if one could not find an authority to his mind among Escobar, Suarez, Sanchez, Velasquez, Molina, Bauny, Busenbaum, Toletus, Filiutius, Less, Ponce, and an innumerable host of other “grave” and, as a rule, obliging doctors. One of the most amusing of their ruses was that by which they avoided the condemnation of usury. That “money should breed money” was regarded universally in those days unnatural; but borrowing was necessary, and no one could be expected to lend without being paid for his risk, and for the use of his capital. The remedy for the Jesuit was easy. There is no sin if you only call the payment not interest but “fair profit;” or if you look upon it as a grateful return by the borrower for the favor done him; or, thirdly, if you prefer it, you can avoid the least appearance of evil by making a “Mohatra” bargain, that is, you sell to the person who wants money a quantity of goods, which he at once sells to you again at a lower rate. For these devices, however, the Jesuits are to be judged the less hardly, since almost all moralists found it necessary to evade the mistaken law. It was mainly by their teaching on the fundamental question of the duty of veracity that they made themselves a by-word and a reproach among men. To settle the limits of this duty is, indeed, one of the most difficult problems in practical ethics; but the Jesuits removed it entirely from the category of obligation. War was declared against them by the great Jansenist, Antoine Arnauld; and in 1656 and 1657 Pascal attacked them with an incisive wit, the edge of which none of their attempts could turn. The order became a jest; the clergy were aroused to examine the ponderous folios which contained its casuistry, and to condemn them in a general assembly. The attack was afterwards followed up by the polished satire of Boileau, and by a second exposure of the *Morale des Jesuites* by Nicole Perrault (1667); and the influence of the *Provincial Letters* was at once spread far and wide by means of their immediate translation into Latin, Italian, German, Spanish, and English.

The casuistry of the Reformers was similar, in origin, to that of the early fathers; and, with the marked exception of the question of celibacy, the two systems greatly resemble one another in their severity. This

strictness was most extreme in the Calvinistic Church, as is displayed in the stern rules of its founder, and in the works of the German Danæus (who, in fact, usually follows Augustine), of the English Perkins, and the Dutch Amesius. A more genial spirit prevailed in the Lutheran Church.

During the last two centuries, the study of morals has developed itself in a totally different direction. Free discussion being opened up as to the fundamental questions of religion and morality, modern writers on ethics more generally content themselves with the treatment of great principles, without laying down specific rules for their practical application.

CASUS BELLI, an occasion of war is the reason alleged by one power for going to war with another.

CASWALL, HENRY, D.D. (1810–70), was born at Yately, England, and educated chiefly at the grammar school of Chigwell, Essex. At the age of eighteen he went to the United States, and graduated in arts at Kenyon College, Ohio. After being engaged for several years as a parish minister and a professor of theology in America, he returned to England in 1842, obtained a private Act of Parliament recognizing the validity of his ordination in the United States, was appointed to the vicarage of Figheldean, Wiltshire, and became proctor in Convocation for the diocese of Sarum, and prebendary of Salisbury Cathedral. He received the honorary degree of M.A. from the university of Oxford, and that of D.D. from Trinity College, Hartford, Connecticut. Caswall went back to the United States about two years before his death, which occurred at Franklin, Pennsylvania, December 17, 1870. The main object of his life was to promote the consolidation and to increase the power of the great religious organization connected with the English Reformation. His principal work is *America and the American Church*, 1839; 2d edition, 1851.

CAT, a name applied in its widest sense to all feline animals, but generally restricted to a few of the smaller species which approximate more or less closely to the domestic form. Of undomesticated species the best known is the wild cat (*Felis catus*), inhabiting the most inaccessible mountain fastnesses, and the deepest recesses of the forests of Central and Northern Europe and Asia. It attains a length of three feet including the tail, is of a yellowish grey color above and whitish beneath, with a dark streak extending along the back to the origin of the tail, and with indistinct transverse bands on the sides. Its tail is bushy and of equal thickness throughout, annulated and tipped with black. It forms its nest in rocky crevices, or in the hollows of trees, and has been known to make use, for this purpose, of the nests of the larger birds. It is nocturnal in its habits, prowling by night in search of the mammals and birds which form its food, and thus doing immense damage in districts well stocked with game. The fierceness of its disposition, its strength, and its agility are well known; and although it does not seek to attack man, yet when disturbed in its lair, or when hemmed in, it will spring with tiger-like ferocity on its opponent, every hair on its body bristling with rage. In country districts specimens of the domestic cat run wild are by no means uncommon, for, having once tasted wild animal food, hares and rabbits are ever afterwards preferred to rats and mice, and when the house cat thus takes to hunting there are few animals more destructive to poultry and game.

The disposition and habits of the domestic cat are familiar to all, and need not be dwelt upon here. It has never evinced that devotion to man which characterizes the dog, though many individual cases of feline attachment might be quoted. It becomes, however,

strongly attached to particular localities, and will find its way back from the most distant places although conveyed thither under cover. How it performs such feats has long puzzled naturalists, and no theory that has yet been advanced seems adequately to meet the case.

Among the ancient Egyptians the cat was sacred to Isis or the moon; temples were raised, and sacrifices offered in its honor, and its body was embalmed at death. Nor is this feeling quite extinct among modern Egyptians, for in Cairo at the present time there is an endowment in operation for the lodging and feeding of homeless cats.

In the folk-lore of European nations the cat is regarded with suspicion as the favorite agent of witchcraft, and seems often to have shared in the cruelties inflicted on those who were supposed to practice the "black art." In Germany at the present day black cats are kept away from the cradles of children as omens of evil, while the appearance of a black cat on the bed of a sick person used to be taken as an announcement of approaching death.

CATACOMB, a subterranean excavation for the interment of the dead, or burial-vault. In this sense the word "Catacomb" has gained universal acceptance, and has found a place in most modern languages. The original term, *catacumbæ*, however, had no connection with sepulture, but was simply the name of a particular locality in the environs of Rome. It was derived from the Greek and had reference to the natural configuration of the ground. In the district that bore this designation, lying close to the Appian Way, the basilica of St. Sebastian was erected, and the extensive burial-vaults beneath that church — in which, according to tradition, the bodies of the apostles St. Peter and St. Paul rested for a year and seven months previous to their removal to the basilicas which bear their names — were, in very early times, called from it *cæmiterium at catacumbas*, or *catacumbas* alone. From the celebrity of this cemetery as an object of pilgrimage its name became extensively known, and in entire forgetfulness of the origin of the word, *catacumbæ* came to be regarded as a generic appellation for all burial-places of the same kind. This extension of the term to Christian burial-vaults generally dates from the 9th century, and obtained gradual currency through the Christian world. The original designation of these places of sepulture is *crypta* or *cæmiterium*.

The earliest Christian catacombs known may be assigned to the 2d century. The largest number belong to the 3d and the early part of the 4th. The custom of subterranean interment gradually died out, and entirely ceased with the sack of Rome by Alaric, 410 A.D. "The end of the catacomb graves," writes Mommsen, "is intimately connected with the end of the powerful city itself. . . . Poverty took the place of wealth, . . . the traditions of the Christian tomb-architects sank into utter insignificance, and the expanse of the wasted Campagna now offered room enough to bury the few bodies, without having to descend as once far down below the surface of the earth." The earliest account of the Catacombs, that of St. Jerome narrating his visits to them when a schoolboy at Rome, about 354 A.D. shows that interment in them was even then rare if it had not been altogether discontinued; and the poet Prudentius's description of the tomb of the Christian martyr Hippolytus, and the cemetery in which it stood, leads us to the same conclusion. With the latter part of the 4th century a new epoch in the history of the Catacombs arose,—that of religious reference. In the time of Pope Damasus, 366–384 A.D., the Catacombs had begun to be regarded with special devotion, and had become the resort of

large bands of pilgrims, for whose guidance catalogues of the chief burial-places and the holy men buried in them were drawn up. Some of these lists are still extant. Pope Damasus himself displayed great zeal in adapting the Catacombs to their new purpose, restoring the works of art on the walls, and renewing the epitaphs over the graves of the martyrs. In this latter work he employed an engraver named Furius Philocalus, the exquisite beauty of whose characters enables the smallest fragment of his work to be recognized at a glance. Subsequent popes manifested equal ardor, with the same damaging results, in the repair and adornment of the Catacombs, and many of the paintings which cover their walls, which have been too unquestioningly assigned to the period of their original construction, are really the work of these later times. The Catacombs shared in the devastation of Rome by the Goths under Vitiges, in the 6th century and by the Lombards at a later period; and partly through the spoliation of these barbarian invaders, partly through the neglect of those who should have been their guardians, they sank into such a state of decay and pollution that, as the only means of preserving the holy remains they enshrined from further desecration, Pope Paul I., in the latter part of the 8th century, and Pope Paschal, at the commencement of the 9th, commenced the work of the translation of the relics, which was vigorously carried on by successive pontiffs until the crypts were almost entirely despoiled of their dead. The relics having been removed, the visits of pilgrims naturally ceased, and by degrees the very existence of those wonderful subterranean cemeteries was forgotten. Six centuries elapsed before the accidental discovery of a sepulchral chamber, by some laborers digging for *pozzolana* earth (May 31, 1578), revealed to the amazed inhabitants of Rome "the existence," to quote a contemporary record, "of other cities concealed beneath their own suburbs."

In complete agreement with Jerome's vivid picture the visitor to the Roman Catacombs finds himself in a vast labyrinth of narrow galleries, usually from 3 to 4 feet in width, interspersed with small chambers, excavated at successive levels, in the strata of volcanic rock subjacent to the city and its environs, constructed originally for the interment of the Christian dead. The galleries are not the way of access to the cemeteries, but are themselves the cemeteries, the dead being buried in long low horizontal recesses, excavated in the vertical walls of the passages, rising tier above tier like the berths in a ship, from a few inches above the floor to the springing of the arched ceiling, to the number of five, six, or even sometimes twelve ranges. These galleries are not arranged on any definite plan, but, they intersect one another at different angles, producing an intricate network which is almost impossible to reduce to any system. They generally run in straight lines, and as a rule preserve the same level. The different stories of galleries lie one below the other to the number of four or five (in one part of the cemetery of St. Callistus they reach seven stories), and communicate with one another by stairs cut out of the living rock. Light and air are introduced by means of vertical shafts running up to the outer air, and often serving for several stories.

The graves, or *loculi*, as they are commonly designated, were, in the Christian cemeteries, with only a few exceptions, parallel with the length of the gallery. In the pagan cemeteries, on the other hand, the sepulchral recess as a rule entered the rock like an oven at right angles to the corridor, the body being introduced endways. The plan adopted by the Christians saved labor, economized space, and consulted reverence in the deposition of the corpse. These *loculi* were usually constructed for a single body only. Some, however,

were formed to contain two, three, or four, or even more corpses. After the introduction of the body the *loculi* were closed with the greatest care, either with slabs of marble the whole length of the aperture, or with huge tiles, three being generally employed, cemented together with great exactness, so as to prevent the escape of the products of decomposition. Where any epitaph was set up — an immense number are destitute of any inscription at all — it is always painted or engraved on these slabs or tiles. In the earlier interments the epitaph is simply daubed on the slab in red or black paint. In later examples it is incised in the marbles, the letters being rendered clearer by being colored with vermilion. The enclosing slab very often bears one or more Christian symbols, such as the dove, the anchor, the olive-branch, or the monogram of Christ. The palm branch, which is also of frequent occurrence, has been solemnly decided by "the Congregation of Relics" to be an indisputable mark of the last resting place of a martyr. But the decision of this infallible authority has been proved fallacious by the stern logic of facts, — the emblem being found in connection with epitaphs of persons dying natural deaths, or those prepared by persons in their lifetime, as well as in those of little children, and even of pagans. Another frequent concomitant of these Catacomb interments, a small glass vessel containing traces of a red fluid, embedded in the cement of the *loculus*, pronounced as confidently by the same authority to indicate a martyr's grave, has always shown the unwisdom of pronouncing dogmatically without sufficient evidence. The red matter proves to be the remains of wine, not of blood; and the conclusion of the ablest archæologists of the Church of Rome itself is that the vessels were placed where they are found, after the Eucharistic celebration or *agape* on the day of the funeral or its anniversary, and contained remains of the consecrated elements as a kind of religious charm. Instances of the pious theft, not altogether unknown in modern churches, which combines economy with becoming respect to the dead, appear in the Catacombs. Not a few of the slabs, it is discovered, have done double duty, bearing a pagan inscription on one side, and a Christian one on the other. These are known as *opisthographs*. The bodies were interred wrapped in linen cloths, or swathed in bands, and were frequently preserved by embalming. In the case of poorer interments the destruction of the body was, on the contrary, often accelerated by the use of quicklime.

Interment in the wall-recess or *loculus*, though infinitely the most common, was not the only mode employed in the Catacombs. Other forms of very frequent recurrence are the *table-tomb* and *arched tomb*, or *arcosolium*. In each case the arched tomb was formed by an oblong chest, either hollowed out of the rock, or built of masonry, and closed with a horizontal slab. But in the table-tomb the recess above, essential for the introduction of the corpse, is square, while in the *arcosolium*, a form of the later date, it is semicircular. Sarcophagi are also found in the Catacombs, but are of rare occurrence. They chiefly occur in the earlier cemeteries, and the costliness of their construction confined their use to the wealthiest classes, — *e.g.*, in the cemetery of St. Domitilla, herself a member of the imperial house. Another unfrequent mode of interment was in graves like those of modern times, dug in the floor of the galleries. Table-tombs and *arcosolia* are by no means rare in the corridors of the Catacombs, but they belong more generally to the *cubicula*, or family vaults.

Very exaggerated statements have been made as to the employment of the Catacombs as dwelling-places by the Christians in times of persecution. We have, however, sufficient evidence that they were used as places of refuge from the fury of the heathen, in which the be-

lievers — especially the bishops and clergy, who would naturally be the first objects of attack — might secrete themselves until the storm had blown over. This was a purpose for which they were admirably adapted both by the intricacy of their labyrinthine passages, in which any one not possessing the clue would be inevitably lost, and the numerous small chambers and hiding places at different levels which might be passed unperceived in the dark by the pursuers. As a rule also the Catacombs had more than one entrance, and frequently communicated with an *arenaria* or sand-quarry; so that while one entrance was carefully watched, the pursued might escape in a totally different direction by another. But the Catacombs were never intended, nor fit for, dwelling-places, and the stories of persons living in them for months are probably fabulous. According to modern physicians it is impossible to live many days in the caves of *pozzolana* in which many of the Catacombs are excavated. Equally exaggerated are the statements as to the linear and lateral extent of the Catacombs, and their intercommunication with one another. Without resorting to this exaggeration, Mommsen can speak with perfect truth of the "enormous space occupied by the burial vaults of Christian Rome, not surpassed even by the *cloacæ* or sewers of Republican Rome," but the data are too vague to warrant any attempt to define their dimensions. Padre Marchi has estimated the united length of the galleries at from 800 to 900 miles, and the number of interments at between 6,000,000 and 7,000,000; Martigny's estimate is 587 miles; and Northcote's, lower still, at "not less than 350 miles." The idea of general intercommunication is negatived by the fact that the chief cemeteries are separated by low ground or valleys, where any subterranean galleries would be at once filled with water.

It now remains for us to speak of the history of these subterranean burial places, together with the reasons for, and modes of, their construction. From the period of the rediscovery of the Catacombs, towards the end of the 16th century, almost to our own day, a gigantic fallacy prevailed, repeated by writer after writer, identifying the Christian burial-places with disused sand-pits. It was accepted as an unquestionable fact by every one who undertook to describe the Catacombs, that the Christians of Rome, finding in the labyrinthine mazes of the exhausted *arenariæ*, which abounded in the environs of the city, whence the sand used in building had been extracted, a suitable place for the interment of their martyred brethren, where also the sacred rites accompanying the interment might be celebrated without fear of interruption, took possession of them and used them as cemeteries. It only needed a comparison of the theory with the visible facts to refute it at once. But the search after truth is troublesome, and the controvert received doctrines is always unpopular, and it was found easier to accept the traditional view than to investigate for one's self, and so nearly three centuries elapsed before the independence of the *arenariæ* and the Catacombs was established.

Another equally erroneous idea has only slowly retired before the increased historical research and scientific investigation which have been brought to bear on the construction of the Catacombs. This is, that these vast burial-places of the early Christians remained entirely concealed from the eyes of their pagan neighbors, and were constructed not only without the permission of the municipal authorities but without their cognizance. Nothing can be further from the truth. Such an idea is justly stigmatized by Mommsen as ridiculous, and reflecting a discredit as unfounded as it is unjust on the imperial police of the capital. That such vast excavations should have been made without attracting at-

tion, and that such an immense number of corpses could have been carried to burial in perfect secrecy is utterly impossible. Nor was there any reason why secrecy should have been desired. The decent burial of the dead was a matter especially provided for by the Roman laws. No particular mode was prescribed. Interment was just as legal as cremation, and had, in fact, been universally practiced by the Romans until the later days of the republic. The bodies of the Scipios and Nasos were buried in still existing catacombs; and if motives of reverence for that which had been the temple of the Holy Ghost led the Christians to adopt that which Minucius Felix calls "the better, and more ancient custom of inhumation," there was absolutely nothing, either in their social or religious position to interfere with their freedom of action. The law left them entire liberty, and the faithful did but use their liberty in the way that suited them best, burying their dead according to a fashion to which many of them had been long accustomed, and which enabled them at the same time to follow in death the example of him who was also their model in life. Interment in rock-hewn tombs, "as the manner of the Jews is to bury," had been practiced in Rome by the Jewish settlers for a considerable period anterior to the rise of the Christian Church. But although, as we have said, in ordinary times there was no necessity for secrecy, yet when the peace of the church was broken by the fierce and often protracted persecutions of the heathen emperors, it became essential to adopt precautions to conceal the entrance to the cemeteries, which became the temporary hiding-places of the Christian fugitives, and to baffle the search of their pursuers. To these stormy periods we may safely assign the alterations which may be traced in the staircases, which are sometimes abruptly cut off, leaving a gap requiring a ladder, and the formation of secret passages communicating with the *arenaria*, and through them with the open country.

When the storm of persecution ceased and Christianity had become the imperial faith, the evil fruits of prosperity were not slow to appear. Cemetery interment became a regular trade in the hands of the *fossore*s, or grave-diggers, who appear to have established a kind of property in the Catacombs, and whose greed of gain led to that destruction of the religious paintings with which the walls were decorated, for the quarrying of fresh *loculi*, to which we have already alluded. Monumental epitaphs record the purchase of a grave from the *fossore*s, in many cases during the lifetime of the individual, not unfrequently stating the price. A very curious fresco, found in the cemetery of Callistus, preserved by the engravings of the earlier investigators represents a "fossor" with his lamp in his hand and his pick over his shoulder, and his tools lying about him. Above is the inscription, "Diogenes Fossor in Pace depositus."

Our space forbids us to enter on any detailed description of the frescos which cover the walls and ceilings of the burial-chapels in the richest abundance. It must suffice to say that the earliest examples are only to be distinguished from the mural decorations employed by their pagan contemporaries (as seen at Pompeii and elsewhere) by the absence of all that was immoral or idolatrous, and that it was only very slowly and timidly that any distinctly religious representations were introduced. These were at first purely symbolical, meaningless to any but a Christian eye, such as the Vine, the Good Shepherd, the Sheep, the Fisherman, the Fish, &c. Even the personages of ancient mythology were pressed into the service of early Christian art, and Orpheus, taming the wild beasts with his lyre, symbolized the peaceful sway of Christ; and Ulysses, deaf to

the Siren's song, represented the Believer triumphing over the allurements of sensual pleasure. The person of Christ appeared but rarely, and then commonly simply as the chief personage in a historical picture. The events depicted from our Lord's life are but few, and always conform rigidly to the same traditional type. The most frequent are the miracle at Cana, the multiplication of the loaves and fishes, the paralytic carrying his bed, the healing of the woman with the issue of blood, the raising of Lazarus, Zacchæus, and the triumphal entry into Jerusalem. The Crucifixion, and subjects from the Passion, are never represented. The cycle of Old Testament subjects is equally limited. The most common are the history of Jonah as a type of the Resurrection, the Fall, Noah receiving the dove with the olive branch, Abraham's sacrifice of Isaac, Moses taking off his shoes, David with the sling, Daniel in the lions' den, and the Three Children in the fiery furnace. The mode of representation is always conventional, the treatment of the subject no less than its choice being dictated by an authority to which the artist was compelled to bow. Whatever be the date of the original pictures, a point on which considerable doubt exists, it is tolerably certain that the existing frescos are restorations of the 8th or even a later century, from which the character of the earlier work can only very imperfectly be discovered. All the more valuable of these paintings have been reproduced in Mr. Parker's magnificent series of photographs taken in the Catacombs by the magnesium light.

Beyond Rome and its suburbs the most remarkable Christian Catacombs are those in the vicinity of Naples, described by Pelliccia. These catacombs differ materially from those of Rome. They were certainly originally stone-quarries, and the hardness of the rock has made the construction practicable of wide, lofty corridors, and spacious halls, very unlike the narrow galleries and contracted chambers in the Roman cemeteries. The mode of interment, however, is the same as that practiced in Rome, and the *loculi* and *arcosolia* differ but little in the two.

Denon also describes catacombs at Malta near the ancient capital of the island. The passages were all cut in a close-grained stone, and are very narrow, with arched ceilings, running very irregularly, and ramifying in all directions.

Passing to Egypt, a small Christian catacomb has been recently discovered at Alexandria, and described and figured by De' Rossi.

Subterranean cemeteries of the general character of those described are very frequent in all Southern and Eastern countries. A vast necropolis in the environs of Saida, the ancient Sidon, is described in Renan's *Mission en Phénicie*, and figured in Thobois's plates. It consists of a series of apartments approached by staircases, the sides pierced with sepulchral recesses running lengthwise into the rock.

CATAFALQUE (Ital. *catafalco*, a scaffold), a temporary structure of carpentry, a kind of baldachin, intended to represent a tomb, and placed over the coffin of distinguished persons during the funeral rites that precede interment, as also sometimes over the grave, where it was usually left for several months. The most splendid on record was Michael Angelo's.

CATALANI, ANGELICA, an Italian singer, born in 1779 at Sinigaglia, near Ancona, made her debut at Venice in 1797. She retired from the stage in 1827, and died of cholera, in Paris, June 13, 1849.

CATALEPSY is a term applied to a nervous affection characterized by the sudden suspension of sensation and volition, accompanied with a peculiar rigidity of the whole or of certain muscles of the body. The subjects

of catalepsy are in most instances females of highly nervous temperament. The exciting cause of an attack is usually mental emotion operating either suddenly, as in the case of a fright, or more gradually in the way of prolonged depression. The symptoms presented vary in different cases, and even in the same individual in different attacks. Catalepsy belongs to the class of functional nervous disorders, of which the pathology is but little understood, owing to the manner in which morbid physical and psychical conditions are mixed up. Although it is said to occur in persons in perfect health, careful enquiry will usually reveal some departure from the normal state, as is shown by the greater number of recorded cases. More particularly is this true of females, in whom some form of menstrual derangement will generally be found to have preceded the cataleptic affection.

CATALONIA (in Spanish, *Cataluña*), an old province of Spain and principality of the crown of Aragon, triangular in shape and forming the north-east corner of the peninsula, is bounded on the N. by the Pyrenees, W. by Aragon, S. by Valencia, E. by the Mediterranean. The greatest breadth is 130 miles, the greatest length 185 miles; area, 12,483 square miles. The coast, which is partly sandy, partly rocky, extends about 240 miles; the harbors are mostly unprotected from the wind. The surface is much broken by spurs of the Pyrenees, the direction of which is generally south. Running south-west to north-east, and united on the north with one of the offsets of the Pyrenees, is the range of the Sierra Llena, which bisects the province, and forms its central watershed. The principal rivers are the Ter, the Llobregat, and the Ebro, which all run into the Mediterranean. None of them is navigable. The climate, in spite of frequent mists and rains, sudden changes of temperature, and occasional great mid-day heat, is healthy and favorable to vegetation. The soil is light and loamy. Amongst the rocks of the province may be mentioned granite, chistolite schists, porphyry and lava. Near Olot, towards the north-east, is a district containing extinct volcanoes. Oolitic limestone is found in the neighborhood of Figueras; and in other localities, nummulitic and Miocene deposits are represented. Mining is not much prosecuted; but copper, zinc, manganese, marble, sulphur, and coal are worked, and rock salt in abundance is procured from Cardona. The vegetation of Catalonia varies according to the altitude and nature of different regions. The dwarf-palm, orange, lime, and olive grow in the warmer tracts; and on the higher grounds the thorn-apple, pomegranate, myrtle, esparto, and heaths flourish. There is much woodland; but meadows and pastures are rare. Maize, millet, rye, flax, liquorice, and fruits of all sorts — especially nuts, almonds, oranges, figs, walnuts, and chestnuts — are produced. Wheat sufficient for one-fourth of the population is grown, and the vine is extensively cultivated. Few cattle, but numbers of sheep, goats, and swine are reared. Game is plentiful, and the fisheries on the coast are excellent. The exports are chiefly fruits, cork, and wines. The wines are for the most part rough and strong, though some are very good, especially when matured. The imports are chiefly textiles, coal, coke, machinery of all kinds, and salt-fish. The manufactures of Catalonia are cotton, silk, woolen goods, brandy, paper, cordage and firearms. The Catalonians are a frugal, sharp-witted and industrious people, having much national pride, and a strong revolutionary spirit. They are distinct in origin from the other inhabitants of Spain, from whom they differ both in their dialect and costume and in their great energy and their love of enterprise. Irrigation, careful husbandry, and railroad communication have much devel-

oped the resources of their country, in themselves excellent; and there are many manufacturing towns and industrial establishments. Catalonia is divided into the provinces Gerona, Barcelona, Tarragona, and Lerida. Its chief towns are the ports of Rosas, Mataro, Tarragona, and the capital Barcelona; and Tortosa, Gerona, Figueras, Lerida, and Manresa. The population is 1,745,000.

CATALPA, an interesting genus of hardy trees of the order Bignoniaceæ, of which two species are natives of the United States, and two others (decidedly distinct) of Japan. The genus was named by Catesby, probably from the Catawba river, where he first found them, in 1726. The common Catalpa (*C. bignonioides*) known also as the beantree, catawba, Indian bean, and cigar tree, is a low and much-branched tree, seldom more than thirty or forty feet high; extensively grown in the Northern States and in Southern Europe for ornament, but naturally found chiefly in the Gulf States.

CATALYSIS (Gr. dissolution) is a term applied in Chemical Physics to a force supposed to be exerted by one substance upon a second, whereby the latter is subjected to change or decomposition, while the former remains comparatively unaltered. Fermentation is an example of this force.

CATAMARAN (a Tamil word) is a raft formed usually of three pieces of wood lashed together, the middle piece being longer than the others, and serving as a keel; on this the rower kneels, or squats, and works a paddle. The vessels are used by the natives of Madras.

CATAMARCA, or, in its full form, SAN FERNANDO DE CATAMARCA, the capital of the province of the same name in the Argentine Republic, is pretty regularly built, has a large square, with an obelisk in memory of the achievement of national independence, and numbers among its public buildings a small townhouse, a fort, a Franciscan monastery, and a Santa Teresa convent. The present town of Catamarca only dates from 1685, when it replaced the old town of Chacra, the ruins of which are still to be seen a short distance to the north, at a spot which was found both unhealthy and exposed to inundation. Population, 6,000.

CATANIA, the ancient *Catana*, a city and seaport of Sicily and the chief town of a province, is situated on the east coast of the island, at the foot of the southern projections of Mount Etna, about sixty miles by rail from Messina, in 37° 23' 20" N. lat. and 15° 5' 15" E. long.

CATANIA, the ancient *Catana*, a city and seaport of Sicily and the chief town of a province, is situated on the east coast of the island, at the foot of the southern projections of Mount Etna, about 60 miles by rail from Messina, 37° 28' 20" N. lat. and 15° 5' 15" E. long. It is one of the most important and attractive cities in the island, and has a fine appearance from the sea. Its first foundation dates from 1518, when the Benedictines removed from the town of Nicolosi further up the slope of Mount Etna, where they had been settled since 1359; but the present buildings were erected in the beginning of the 18th century by Contini of Rome. The church is principally remarkable for a grand organ, with seventy-two stops and 2916 pipes, built by Donato del Piano in 1760. Remains of the Roman period are numerous and extensive; they include a theatre, an amphitheatre, an odeum, several baths known as the Bagni Achillei, a number of tombs to the north-west of the town, and a few fragments of a so-called temple of Ceres. Its industry and commerce are of considerable importance; silk and linen are largely manufactured, and there is a regular export of sulphur, grain, fruits, macaroni, olives, and articles in amber and lava. Population, 84,379.

The ancient Catana was founded (730 B.C.) by a col-

ony from the neighboring city of Naxos, which was itself founded by the Chalcidians of Eubœa. It maintained its independence until 476 B.C., when it was taken by Hiero I., who removed its inhabitants to Leontini, and repeopled the city with a new colony of 5000 Syracusans and an equal number of Peloponnesians, at the same time changing its name to Ætna. Soon after the death of Hiero the former inhabitants obtained possession of the town, when it again took the name of Catana. In 403 B.C. it was taken by Dionysius of Syracuse, who, after plundering the city and selling the inhabitants for slaves, established there a body of Campanian mercenaries. In the first Punic war it was one of the earliest among the cities of Sicily to submit to the Romans, and it appears to have afterwards continued on friendly terms with them. In the time of Cicero it was a flourishing and wealthy city; but it suffered so severely from the ravages of Sextus Pompeius, that Augustus afterwards sent a colony of veterans thither. In its more modern history the principal events are its occupation by the Goths, its deliverance by Belisarius, its sack by the Saracens, its conquest by the Normans, its destruction by earthquake in 1169, and its devastation by Henry VI., the erection of its fortress of Rocca Orsina by Frederick II., and several sieges in the course of the 14th century, the partial ruin of its harbor in 1669 by the eruption of Mount Ætna, and its almost total overthrow by the earthquake of 1693.

CATANZARO, a city of Italy, capital of the province of Calabria Ulteriore II., stands on the slope of a lofty and rocky hill near the Gulf of Squillace, 30 miles S.S.E. of Cosenza. Population, 24,900.

CATAPULTA, a military engine, employed by the ancient Greeks and Romans. It was constructed of wood and ropes in such a way that a sudden and forcible recoil could be produced, sufficient to project arrows and spears to a considerable distance. It is usually mentioned in conjunction with the *ballista*, which was employed for projecting heavy stones.

CATARACT. See OPHTHALMIC DISEASES.

CATARRH is a term employed to describe a state of irritation of the mucous membrane of the air passages, or what is called in popular language a cold. This complaint, so prevalent in damp and cold weather, usually begins as a nasal catarrh or coryza, with a feeling of weight about the forehead and some degree of difficulty in breathing through the nose, increased on lying down. Fits of sneezing accompanied with a profuse watery discharge from the nostrils and eyes soon follow, while the sense of smell and to some extent that of taste become considerably impaired. There is usually present some amount of sore throat and of bronchial irritation, causing hoarseness and cough. Sometimes the vocal apparatus becomes so much inflamed (laryngeal catarrh) that temporary loss of voice results. There is always more or less feverishness and discomfort, and frequently an extreme sensitiveness to cold. After two or three days the symptoms begin to abate, the discharge from the nostrils and chest becoming thicker and of purulent character, and producing when dislodged considerable relief to the breathing. On the other hand the catarrh may assume a more severe aspect and pass into some form of pulmonary inflammation (see BRONCHITIS).

A peculiar catarrhal affection occasionally occurs, in an epidemic form, to which the name Influenza is applied (see INFLUENZA).

Many remedies have been proposed with the view of cutting short a catarrh, but none of them are infallible, even when they can be safely employed. In some cases an opiate taken at the outset proves effectual for this end, but as often it will be found to fail. Entire absti-

nence from liquids of every kind for a period of forty-eight hours has been recommended as sufficient to cure any catarrh, but few will be found willing to submit to such a regimen. Many persons appear to think that they will get rid of a cold most quickly by continuing to go about, and, happily, in the majority of such cases, no harm results. Nevertheless, it is more than probable that by a brief confinement to a warm room and the employment of means to promote perspiration (such as Dover's powder, along with a warm or vapor bath) speedier relief will be obtained.

The term catarrh is now used in medical nomenclature in a still wider sense than that above mentioned, being employed to describe a state of irritation of any mucous surface in the body which is accompanied with an abnormal discharge of its natural secretion, hence the terms gastric catarrh, intestinal catarrh, &c.

CATASAUQUA, a city of Lehigh county, Pa., is situated on the Lehigh river, also on the Lehigh Valley canal, and on the Lehigh Valley and Catasauqua and Fogelsville railroads. It is nearly 100 miles from New York city and sixty-five miles from Philadelphia, and owes its importance principally to its extensive manufactories of iron and iron products, and to its contiguity to the anthracite coal deposits. The city contains one national bank, two weekly papers, ten churches, graded schools, half a dozen hotels, stores, halls, private residences, and other improvements of a substantial and valuable character, in addition to rolling mills, foundries, steel works, car, wheel and axle works, machine shops, planing and grist mills. The population is 5,000, and the city is steadily growing in wealth and prominence as a manufacturing and commercial center.

CATAWBAS, an American Indian tribe in North and South Carolina, which has now become almost extinct, but was still able at the time of the war of Independence to furnish a valuable contingent to the South Carolina troops. They then occupied a number of small towns on the river which still preserves their name; but they afterward leased their lands and removed to the territory of the Cherokees. They soon returned to their old homes, however, where their remnant still remains.

CATEAU CAMBRESIS, or LE CATEAU, a town of France, in the department of Nord, on the Selle, 15 miles E.S.E. of Cambray. Formed originally by the union of the two villages of Peronne and Vendelgies, under the protection of a castle built by the bishop of Cambray, Cateau became the seat of an abbey in the 11th century. In the 15th it was frequently taken and retaken; and in 1554 it was burned by the French, who in 1559 signed a celebrated treaty with Spain in the town. Population in 1889 about 10,000.

CATECHISM, a word which originally signified instruction by word of mouth. But, as it was necessarily by oral instruction that, in the early church, catechumens (or converts in preparation for baptism) were instructed in the essential doctrines of Christianity, and as the catechist usually sought to produce clear comprehension by means of questioning, several distinct uses of the word have sprung from its original employment, and it has come to signify — (1) instruction by means of question and answer; (2) elementary instruction, whether oral or written, in any branch of knowledge; and (3), in common language, a book of elementary instruction by means of question and answer, — either secular, as *e.g.*, the science catechisms of the Middle Ages, or, as usually, religious.

The most important and authoritative of the catechisms of the Roman Catholic Church is that of the Council of Trent, which was published in 1566.

Catechisms were also very common among the Christian sects which, during the Middle Ages, opposed themselves to the dominant church, as the Albigenses and the Wickliffites.

The Greek Church has two principal catechisms, the earlier of which is that of Peter Mogilas, patriarch of Kieff, which was published in 1542, and sanctioned by the church in 1572. The other is that of Plato, patriarch of Moscow, of which an abstract has been made for purposes of education.

Of the larger Protestant sects, each has a separate catechism. The Lutherans are represented by the two smaller catechisms of their founder, published in 1520 and 1529, and by his larger catechism, published in the latter year. In Switzerland, France, the Low Countries, Hungary, and Scotland, the *Geneva Catechism* of Calvin (1536) was for some time the standard of the Reformed Church. The *Heidelberg Catechism*, which appeared in 1563, compiled by Casper Olevian and Zacharias Ursinus, and revised by the Synod of Dort, became the standard of the Swiss Church; and upon it was founded the *Zurich Catechism* (1639). A Socinian catechism appeared at Rakov in 1574.

The first prayer-book of Edward VI., published in the year 1549, contained what now forms the first part of the catechism of the English Church.

Besides these catechisms, which profess to be the symbols of various churches, a large number of private catechisms have been published. In the English Church the most important are Cranmer's and Noel's (1570). Among the English Protestant dissenters, who of course, do not possess an authoritative catechism, there have been several, of which the most famous are those of Dr. Watts.

CATECHU, or CUTCH, is an extract obtained from several plants, the chief sources being the wood of two species of *Acacia* (*A. Catechu* and *A. Suma*), both natives of India. The extract obtained from these plants is also known as black catechu, Pegu cutch, and *Terra japonica*. A similar extract, known in pharmacy as pale catechu (*Catechu pallidum*), and in general commerce as Gambir, is produced from the leaves of *Unaria Gambir* and *U. acida*, Rubiaceous plants growing in the East Indian Archipelago. A third product to which the name catechu is also applied, is obtained from the fruits of the areca or betel palm, *Areca Catechu*; but this substance is not chemically the same as the other two, neither does it appear to enter to any extent into European commerce.

Gambir and catechu are extensively employed in dyeing and tanning, and to some extent as astringents in medicine. For dyeing they have been in use in India from the most remote period, but it is only during the present century that they have been placed on the list of European dyeing substances.

CATECHUMEN. The Catechumens in the earliest ages of the church were those who were desirous of and candidates for baptism. The liberal signification of the term, according to its etymology (Greek) is one who is caused to hear something. In ecclesiastical language, — and the word is not otherwise used, — a catechumen is one who is being instructed in the doctrines of Christianity in preparation for baptism.

Catechumens were usually divided into four classes. The first class appears to have been those who were still in the condition of inquirers, — those who had been sufficiently impressed by that they had heard of Christianity to wish for more complete instruction. It would seem that this first instruction was, from motives of prudence, given privately and not in the churches. The second class consisted of those who, having been thus instructed, were found worthy of being admitted to the

churches, not, however, to take any part in the holy mysteries, or even, as it would seem, in the prayers of the faithful, but for the hearing of sermons and exhortations and the reading of the gospel. These were accordingly called *audientes*, — hearers. They left the church when the reading of the sacred Scriptures and the sermon had been concluded. The third class consisted of those who had formally demanded baptism, and placed their names in the list of catechumens. These were called *prostrati* or *genuflectentes*, — those who shared in the prayers of the congregation. The fourth class was the *electi* or *competentes*, or those who had completed the period of their probation, and were deemed ready to receive baptism, and only waited to do so on the first occasion, that is to say, at the following Easter or Pentecost. The most important body of catechumens was obviously those of the third class, the *genuflectentes*; and it is of these that most of what we read in the early writers of the catechumens generally must be understood.

CATEGORY, a term first introduced into the philosophical vocabulary by Aristotle, means etymologically an accusation. Even in the writings of Aristotle the word occurs once or twice in this its primary acceptance, but generally it has there a definite and technical signification.

The Aristotelian doctrine is most distinctly formulated in the short treatise *Categoriai*, which generally occupies the first place among the books of the *Organon*. The authenticity of the treatise was doubted in early times by some of the commentators, and the doubts have been revived by such scholars as Spengel and Prantl. On the other hand Brandis, Bonitz, and Zeller are of opinion that the tract is substantially Aristotle's. The matter is hardly one that can be decided either *pro* or *con* with anything like certainty; but this is of little moment, for the doctrine of the categories, even of the *ten* categories, does not stand or fall with only one portion of Aristotle's works.

It is surprising that there should yet be so much uncertainty as to the real significance of the categories, and that we should be in nearly complete ignorance as to the process of thought by which Aristotle was led to the doctrine. On both points it is difficult to extract from the matter before us anything approaching a satisfactory solution. The terms employed to denote the categories have been scrutinized with the utmost care, but they give little help.

In the *Categoriai* Aristotle prefixes to his enumeration a grammatico-logical disquisition on homonyms and synonyms, and on elements of the proposition, *i.e.*, subject and predicate. He draws attention to the fact that things are spoken of either in the connection known as the proposition, *e.g.*, "a man runs," or apart from such connection, *e.g.*, "man" and "runs." He then proceeds, "Of things spoken of apart from their connection in a proposition, each signifies either Substance, or Quantity, or Quality, or Relation, or Where (*i.e.* Place), or When (*i.e.* Time), or Position, or Possession, or Action, or Passion.

Aristotle has also left us in doubt on another point. Why should there be only *ten* categories? and why should these be the ten? Kant and Hegel, it is well known, signalize as the great defect in the Aristotelian categories the want of a principle, and yet some of Aristotle's expressions would warrant the inference that he *had* a principle, and that he thought his arrangement exhaustive.

Modern philosophy, neglecting altogether the dry and tasteless treatment of the Aristotelian doctrine by scholastic writers, gave a new, a wider, and deeper meaning to the categories. They now appear as ultimate or

root notions, the metaphysical or thought elements, which give coherence and consistency to the material of knowledge, the necessary and universal relations which obtain among the particulars of experience. There was thus to some extent a return to Platonism, but in reality, as might easily be shown, the new interpretation was, with due allowance for difference in point of view, in strict harmony with the true doctrine of Aristotle. The modern theory dates in particular from the time of Kant, who may be said to have re-introduced the term into philosophy. Naturally there are some anticipations in earlier thinkers. The Substance, Attribute, and Mode of Cartesianism can hardly be classed among the categories; nor does Leibnitz's chance suggestion of a fivefold arrangement into Substance, Quantity, Quality, Action and Passion, and Relations, demand any particular notice. Locke, too, has a classification into Substances, Modes, and Relations, but in it he has manifestly no intention of drawing up a table of categories. What in his system corresponds most nearly to the modern view of these elements is the division of kinds of real predication. In all judgments of knowledge we predict either (1) Identity or Diversity, (2) Relation, (3) Co-existence, or necessary connection, or (4) Real existence. From this the transition was easy to Hume's important classification of *philosophical relations* into those of Resemblance, Identity, Time and Place, Quantity or Number, Quality, Contrariety, Cause and Effect.

CATHARTICS (Gr. *kathairō*, I purify), a name originally for all medicines supposed to purify the system from the matter of disease. Ultimately the term cathartic became limited to remedies acting on the bowels. The principal cathartics are aloes, gamboge, colocynth, rhubarb, scammony, jalap, senna, Epsom and other salts, and castor oil. Croton oil, elaterium, and black hellebore are powerful cathartics.

CATERPILLAR. See BUTTERFLIES.

CATGUT is the name applied to cord of great toughness and tenacity prepared from the intestines of sheep. It is used for the strings of harps and violins, as well as other stringed musical instruments, for hanging the weights of clocks, for bow-strings, and many other purposes where toughness, flexibility, and durability are required. To prepare catgut the intestines are cleaned, freed from fat, and steeped for some time in water, after which their external membrane is scraped off with the back of a knife or other blunt tool. They are then steeped for some time in an alkaline lye, smoothed and equalized by drawing out, bleached with sulphuric fumes, if necessary dyed, sorted into sizes, and twisted together into cords of various numbers of strands according to their uses. The best strings for musical instruments are imported from Naples; and it is found that lean and ill-fed animals yield the toughest gut.

CATHAY. See CHINA.

CATHCART, SIR GEORGE (1794-1854), British general, was born in London, May 12, 1794. He was the third son of the first Earl Cathcart, a distinguished general and diplomatist, commander-in-chief of the expedition to Copenhagen in 1807, and afterwards ambassador to Stockholm and St. Petersburg. He fell at the battle of Inkermann, November 5, 1854.

CATHEDRAL, more properly **CATHEDRAL CHURCH**, the chief church of a diocese, in which the bishop has his official seat or throne, *cathedra*. The earliest example given of the use of the term *Ecclesia Cathedralis* is in the Acts of the Council of Tarragona, in 516. Another primitive designation was "Ecclesia mater" or "matrix," indicating the cathedral as the mother church of the diocese. As being the chief house of God, of the district, it acquired in Germany the name

of *Domkirche*, and in Italy of *Duomo*. The word "Ecclesia" was gradually dropped, and by the 10th century the adjective "cathedralis" took rank as a substantive, which it has successfully maintained in most of the modern languages of Europe. The essential distinction between a cathedral and all other churches, viz., that it is the church of the bishop, containing his throne of office, or *bishop's stool*, as our Saxon forefathers termed it, is thus well expressed by Hooker, "To note a difference of that one church where the bishop hath his seat, and the rest which depend upon it, that one hath been usually termed *cathedral*, according to the same sense wherein Ignatius, speaking of the Church of Antioch, termed it his throne; and Cyprian, making mention of Evaristus, who had been bishop and was now deposed, termed him *cathedræ extorrem*, one that was thrust besides his chair."

By very early canons it was decreed that cathedrals should only be established in chief cities. The Council of Laodicea (361), following the legislation of the Council of Sardica (347), prohibited the appointment of bishops in villages or country places. Throughout the Roman empire, where the ecclesiastical coincided with the civil divisions, the seats of religious authority were fixed in the same spots as the seats of temporal authority, the bishop placing his *cathedra* in the city where the temporal governor had planted his curule chair. In Britain, however, where, in the early days when the church first developed her power, cities were but few and insignificant, the case was different. The bishop was rather the bishop of a district or of a tribe than of a city. The position of his cathedral was dictated by motives of convenience and security rather than by the dignity and populousness of the site. Not unfrequently the *cathedra* was migratory. This state of things drew to an end with the conclusion of the 10th century, when the country became more settled, and the Roman system was finally ratified by the Council of London (1075), which ordered that episcopal sees should be removed from unwallled villages to walled cities. In obedience to this decree the cathedrals of Salisbury, Chichester, and Chester (the last only temporarily) were created,—succeeding to the episcopal dignity of those of Sherborne, Selsey, and Lichfield (Freeman, *Hist. of Norman Conquest*, vol. iv. pp. 414-420). Other transferences of only slightly later date were those from Dorchester to Lincoln, and from Wells to Bath, as well as that of the East Anglian see from Elmham to Thetford and thence to Norwich.

Wherever established, the cathedral church was regarded as being, what it usually was in fact, the mother church of the district dependent upon it. This district was for the first three centuries designated the *parochia* of the bishop. Gradually the term *diocese*, originally signifying a civil province of the lesser sort, came to be transferred to ecclesiastical divisions, to the exclusion of the earlier name, which in its forms, *parish*, *paroisse*, *parrocchia*, &c., was restricted to the smaller ecclesiastical districts, each containing a single church. Cathedrals in their original idea possessed much of a missionary character. The district of which they were the ecclesiastical centre in general received the light of religious truth from them. They were the headquarters of the bishop and his clergy, from which they went forth for the evangelization of the heathen inhabitants—*pagani*, i. e., dwellers in the *pagi*, or surrounding country villages. To this they also returned as their home for rest and refreshment, as well as for necessary conference. In the words of Dean Milman,—“Christianity was first established in the towns and cities, and from each centre diffused itself with more or less success into the adjacent country.”

CATHERINE, SAINT. The Roman hagiology contains the record of no less than six saints of this name, viz.:—1. St. Catherine, virgin and martyr, whose day of commemoration recurs on the 25th of November; 2. St. Catherine of Sweden, who died abbess of Watzen, on the 24th March 1381, and is commemorated on the 21st of that month; 3. St. Catherine of Siena, born in 1347, whose festal day is observed on the 30th of April; 4. St. Catherine of Bologna, whose family name was Vigri, and who died abbess of the Convent of St. Clairs in that city on the 9th March 1463; 5. St. Catherine of Genoa, who belonged to the noble family of Fieschi, was born about 1448, spent her life and her means in succoring and attending on the sick, especially in the time of the plague which ravaged Genoa in 1497 and 1501, died in that city in 1510, was canonized by Clement XII. in 1737, and had her name placed in the calendar on the 22d of July by Benedict XIV.; and 6. St. Catherine de' Ricci, of Florence, born of that noble family in 1522, who became a nun in the convent of the Dominicans at Prato, died in 1589, and was canonized by Benedict XIV. in 1746, who fixed her festal day on the 13th February.

All these women are recorded by the chroniclers of the Roman Church to have worked miracles. Indeed without this essential qualification they could not have been canonized. The lives of all, save that of Catherine of Genoa, whose career was a more active one, having been spent mainly in the hospitals of her native city, were passed in the practice of the ordinary monastic virtues. St. Catherine de' Ricci was subject to long trances and visions. And of St. Catherine of Genoa it is recorded, that that miracle of levitation (or being raised from the ground), which is asserted with such curious frequency to have happened to various saints, frequently happened to her, when she was in the act of receiving the Holy Communion.

Of all these saints, however, it will only be necessary here to say a few words of the earliest of the name, who is the person intended when the Roman Church speaks of St. Catherine without any additional designation, and then to give a somewhat more detailed account of the far most celebrated and historically important of them all, St. Catherine of Siena.

History has exceedingly little to tell of this saint; history, more properly so called, indeed, has nothing at all. She is said to have been of royal parentage, and her life is referred to the early part of the 4th century. She was martyred at Alexandria. She was especially celebrated for her learning and philosophical culture, and has always been considered the especial patron of philosophical schools. But in proportion to the scantiness of authenticated fact, legendary fable has been abundant in furnishing forth lives of the saint. And it is to one of these legends that the well-known presentiment of the saint, which alone is likely to cause modern readers to feel any interest in her name, is due. It is said that in revenge for the discomfiture of a company of heathen philosophers, with whom she had been compelled to dispute, the holy and learned lady was bound to a wheel armed with spikes, in such sort that every turn of the machine would cause the spikes to pierce her body. But the cords were miraculously broken, and the malice of her enemies foiled. Hence St. Catherine, virgin and martyr, is always represented with a wheel, and the extreme popularity of this saint, and consequent commonness of the pictures of her, is indicated by the fact that a wheel of a certain construction and appearance is to the present day called a Catherine wheel.

St. Catherine of Siena, born in that city in the year 1347, was a daughter of Giacomo Benincasa, said by the hagiographers to have been a descendant of the noble

family of Borghese, also of Sienese origin,—a connection, however, which has been repudiated by the nobles of that subsequently Papal family. It seems certain, however, that the two families were sprung from the same stock. The researches of Signor Grottanelli, the present librarian of the municipal library at Siena, have enabled him to construct a pedigree of the saint, which may be considered as perfectly authentic, from which it appears that she was one of thirteen children; and that her father Giacomo, who died when she was one-and-twenty, in 1368, had been one of ten. Her mother Lapa, who was the grand-daughter of a "poeta volgare,"—that is to say, a poet who wrote in the then nascent Italian tongue,—lived to be eighty-nine. To her and to one of her brothers, and to two of her nieces sundry of the saint's letters are addressed.

As is usual in the Roman hagiography, the first and contemporary biographer of St. Catherine, her confessor, the Dominican friar Raimondo (he was great-grandson of the celebrated Pietro delle Vigne, the chancellor of the Emperor Frederick II., and became the 24th general of the Dominican order), insists largely on the tendency towards sanctity which marked Catherine in her earliest years. The austerities and self-inflictions by which she prepared herself for her career, and gave proof of her vocation to those around her, began at an incredibly early age, and went on increasing in intensity till they pass from the probable to the highly improbable, and thence to the manifestly miraculous. At five years old it was her practice in going up stairs to kneel at each step to the Virgin. She habitually flogged herself and induced other children to do the same, at six years of age. At seven she deprived herself of a great portion of her food, secretly giving it to her brother, or throwing it to the cats. At the same age she would watch from the window to see when a Dominican monk passed, and as soon as he had moved on, would run down and kiss the spot of the pavement on which he had placed his feet. At twelve years old her mother begged her to comb her hair and wash her face oftener. But this she steadily refused to do, till her mother requested a married sister to use her influence with Catherine, to which for a time she yielded to a certain degree. This yielding, however, she often in after-life, as her confessor testified, bewailed with bitter tears of penitence, always mentioning it, when she made, as she was in the habit of doing frequently, a general confession of her sins.

About the same period of Catherine's life, her twelfth year, she wholly abandoned the use of animal food. At fifteen she left off wine. At twenty she gave up bread, living only on uncooked vegetables. She used to sleep but one quarter of an hour in the four and twenty. She always flogged herself till the blood streamed from her three times a day. She lived three years without speaking. She wore a chain of iron round her body, which gradually ate its way into her flesh. And, finally, she remained wholly without food for many years. Catherine began, we are told, to have visions at six years old. Returning home one day, about that time, through the streets of Siena, she saw in the sky, immediately over the Dominican Church, a throne with Christ sitting on it, dressed in Papal robes, accompanied by St. Paul, St. Peter, and St. John.

But these practices of her infancy, and these early visions were but preparatory to the wonders of a later period. Christ appeared to her daily as soon as she retired to her cell, as she informed Father Raimondo, for the purpose of teaching her the doctrines of religion, which, as she said to her confessor, "no man or woman ever taught me, but only Our Lord Jesus Christ himself, sometimes by means of inspiration, and sometimes by

means of a clear bodily appearance, manifest to the bodily senses, and talking with me, as I now talk with you." An account of these manifestations will be found in the pages of Father Raimondo.

It is necessary to give some account of one miraculous occurrence, which was deemed the great and culminating glory of the saint, and has occupied the most prominent position in her estimation by the church, and in the imaginations of her admirers. This is the supernatural impression on her hands and feet of the scars of wounds corresponding with those made in the hands and feet of the Savior by the nails which fixed Him to the cross. This is stated to have occurred at Pisa, and is asserted by Father Raimondo to have happened in his presence. Catherine had received the sacrament, and fell, as usual with her at such times, into a trance. Her confessor and some others were awaiting her recovery from it, when they saw her suddenly rise with a start to a kneeling posture, with her arms stretched out horizontally, and in a minute or two more fall prostrate. Soon afterwards she came out of her trance, and immediately calling aside her confessor said: "Be it known to you, my father, that I now bear on my body the marks of the crucifixion of our Lord Jesus Christ." "And I," continues Father Raimondo, "having told her that I had observed as much from the movements of her body, while she was in her trance, asked her in what manner the Lord had performed that miracle? And she said, 'I saw the crucified Lord descending towards me with a great light, which caused me, from the impetus of my soul to meet its Creator, to raise up my body. Then I saw five bloody rays descending from the scars of his most holy wounds, and directing themselves to the hands and feet and heart of my body. Upon which, knowing what the mystery was, I exclaimed, O, Lord, my God, let not, I pray you, the scars appear externally on my body, it is enough for me to have them internally. Then, while I was yet speaking, the rays, before they reached me, turned from blood-color to a pure and splendid light, and touched the five parts of my body — that is my hands, my feet, and my heart.' I asked her further, 'Do you now feel in those spots any sensible pain?' To which, with a deep sigh, she replied, 'So great is the pain I feel in all those five places, but especially in my heart, that it appears impossible to me to live many days, unless the Lord perform some further miracle.'"

In order to appreciate the importance and bearing of this celebrated miracle, the fierce and bitter rivalry which existed between the Dominicans and Franciscans must be borne in mind. St. Francis had, some half century previously, received these five wounds in the same way. The marks are familiarly known among hagiographers and their readers as the *Stigmata*; and the having received them was considered the crowning glory of St. Francis, and was the exclusive boast of his Franciscans. But now the Dominicans were even with them. The Sienese Pope, who canonized his townswoman Catharine, Pius II., gave his approbation to a service, in which this reception of the *stigmata* was prominently asserted. And so severely was the blow felt by the indignant Franciscans that they obtained from the next Pope but one, Sixtus IV., himself a Franciscan, a decree to the effect that St. Francis had an exclusive right to and monopoly of that especial miracle and that it was accordingly forbidden to represent St. Catharine receiving the *stigmata* under pain of ecclesiastical censures. The tendency observable in many of the austerities and miracles of other saints, especially St. Francis, is particularly remarkable in this of the *stigmata*. The degree in which it served the purpose of the Dominicans is the measure of suspicion attaching to

it. But there is nothing incredible in the supposition that Catharine may have imagined in her trance all that she had related; and still less is it unlikely that such diseased dreamings may have been the natural product of a waking fancy, filled with, and dwelling on, this much envied manifestation. Perhaps the condition, so providently introduced, as it would seem, that the scars were not to be visible, may be suggestive of a fraudulent intention. But on the other hand, it may be observed that if such a fraud had been planned, it would have been easy for one, who habitually subjected her body to such suffering, to submit to the required wounds beforehand. It will, however, probably be felt by most readers of the above quoted narrative of Father Raimondo that it bears on the face of it many of the marks of untruthfulness. The monk's statement that he had known what had taken place from the movements of her body would seem to be very suggestive of a foregone purpose and plan. On the other hand it may be argued that this is so obvious, that the monk never would have committed himself to such a statement had it not been the simple truth.

But if doubts and difficulties crowd thickly about the whole of that portion of St. Catherine's story which has obtained for her the pre-eminence of saintship, it may be said that the public events of her life, which make part of the public history of her time, are hardly less extraordinary and surprising. In the year 1376, the 29th of Catherine's life, Gregory XI. was living and holding the papal court at Avignon. He was the last of seven French popes in succession who had done so, and had perpetuated for seventy-three years what ecclesiastical writers are fond of terming "the Babylonian captivity of the church." To put an end to this absenteeism, and to bring back the Papacy to Italy was the cherished and anxious wish of all good Italians, and especially of all Italian churchmen. Petrarch had urgently pressed Urban V., Gregory's immediate predecessor, to accomplish the desired change; and Dante had at an earlier date labored to bring about the same object. But both had failed in front of the great difficulties which attended the step. The French cardinals who surrounded the Pope, were anxious, of course, to detain him in France. The king of France threw all his influence into the same scale. The French Pope's own prejudices and wishes were, of course, enlisted on the same side. Rome itself and the dominions of the church, which the violences and usurpations of the Roman barons kept in a state of chronic rebellion, made the Eternal City anything but an inviting residence. There was also considerable truth in the representations insisted on by several of the French Popes, that the rising importance of the northern churches had in a great degree changed the central point of the ecclesiastical world, and that the church could more advantageously be governed from a French than from an Italian city. Thus all the influences which Italy had for many years past striven to bring to bear upon the popes, to induce them to return to their own city had failed. And it was under these circumstances that Catherine, the illiterate daughter of an obscure Sienese dyer, determined to try her powers of persuasion and argument for the accomplishment of that which the princes of the church and the greatest men of Italy had in vain attempted. For this purpose Catherine proceeded to Avignon in the summer of 1376. And in the September of that year the Pope set out on his return to Rome. It is true that he did this intending after a sojourn in the Eternal City to return to France, and he would almost certainly have done so, had he not been prevented by death. But the dyer's daughter did, as things fell out, succeed in her enterprise, and moved the center of

Europe back again once more to its old place in Rome! Of course it may be said that to attribute the Pope's return to Rome to Catherine's intervention is a notable instance of a *post hoc ergo propter hoc* inference. But many proofs might be given from various writers to show that it was unquestionably believed in her own day that Catherine had been the real moving cause of the restoration of the Papacy to Rome. After many other journeyings she arrived in Rome on the 28th of November 1378, in obedience to the commands of the Pope; and there she died on the 29th of April 1380, at the age of thirty-three. Father Raimondo was then at Genoa, and declares that in that city, at the hour of her death, he heard a voice communicating to him a last message from Catherine, which he afterwards found she had uttered on her deathbed word for word as he heard it, "and of this," he adds solemnly, "let that Eternal Truth, which can neither deceive nor be deceived, be witness."

CATHERINE I., wife of Peter the Great of Russia, and after his death for two years (1725-27) empress of Russia, was the natural daughter of a country girl in Livonia. Being left utterly destitute when a mere child, she was brought up by a Lutheran pastor of Marienburg, named Glück. About 1702, at a pretty early age, she was married to a Swedish dragoon, from whom, however, she was almost immediately separated by the vicissitudes of war. She never saw him again; for she was carried off by the Russian forces, and was slave or mistress to more than one Russian general, last of all to Prince Menschikoff, in whose house she attracted the notice of the czar. The czar was struck by her beauty and good sense, and made her his mistress, and then his wife publicly in 1711. After that, in the same year, she performed a service to her husband for which she will always be remembered in history. In the campaign on the Pruth, Peter, with an excessive contempt of the generalship and other military qualities of the Turks, had rashly placed himself in a position in which he was completely surrounded and cut off from all supplies. From this peril he was relieved by Catherine, who was expert enough to collect the necessary sum for bribing the Turkish general, and in this way to bring about a tolerable peace. Next year she was solemnly crowned empress at St. Petersburg. She continued to be the faithful companion and adviser of the czar, till his death in 1725. After that event she was herself raised to the Russian throne, chiefly through the address of her former lord, Prince Menschikoff, who put himself at the head of a powerful party, and gained over the guards at the capital. Her reign of two years was in nowise remarkable. Menschikoff was her minister, and directed affairs almost at his pleasure. Catherine was by no means free from the vices then prevalent at the Russian court. She spent whole days in dissipation, which hastened her end. She died in 1727, being somewhere about forty years of age. She was evidently a woman of considerable insight and expertness, able to manage the eccentric czar in his violent and extravagant moods, and above all capable of sympathizing with him, and assisting him in his great schemes, though she could neither read nor write.

CATHERINE II., empress of Russia, was born at Stettin in 1729; by the dethronement of her husband Peter III., and the exclusion of her son, she ascended the Russian throne in 1762, and occupied it till her death in 1796. Her father, who was prince of Anhalt-Zerbst in Upper Saxony, served in the Prussian army. Her mother, a peevish, hard-tempered and pedantic German of the old school, gave her a severe education, which, however, did not crush but strengthened the masculine temper of her daughter.

The Empress Elizabeth, having selected her nephew Peter, the duke of Holstein Gottorp, as her successor on the throne, had requested a sister of Frederick of Prussia to be the wife of the future emperor. But aware of the extraordinary manners then prevalent at the Russian court, Frederick shrunk from the proposal and suggested the princess of Anhalt-Zerbst. Proposals being made in that quarter and thankfully accepted, the princess, whose original name was Sophia Augusta, was conducted to Russia by her mother in 1744; after some preliminary religious instruction she received the name of Catherine, and was admitted into the Greek Church, and was at length in 1755 with due splendor married to Peter, who was only a year older than herself. The marriage proved an unhappy and ill-assorted one. While Catherine grew up to be a handsome, strong-minded, and ambitious lady, Peter passed his life apparently on the borders of idiocy. Though not destitute of generous and even noble impulses, he was silly, wayward, and extravagant. For a long time Catherine did her best to induce him to act in a reasonable way, but with little success. His wild and drunken habits continued, and, from mere caprice as much as anything else, he became more and more alienated from her.

While her husband wasted his life in every kind of grotesque extravagance, Catherine was engaged in cultivating her mind, and in learning to understand her strange surroundings. She gradually acquired a considerable influence over the mind of Elizabeth, youngest daughter of Peter the Great, who admired her cleverness and beauty. The courtiers of both sexes learned to respect her. Even Peter came to recognize the superiority of her understanding, and though he never liked her, used to ask her advice in his many perplexities. But she did not escape the contagion of the court. In accordance with the prevailing custom, she became involved in one love intrigue after another. Consequently, when children were at length born to her (Paul, the eldest, in 1753), their paternity was matter of serious doubt.

In this way she lived till the beginning of 1762, when the death of Elizabeth opened the way to a very different career. The poor, half-imbecile Peter was now called on to leave his silly employments, and undertake the government of the most extensive empire in the world. All the schemes he embarked in were marked by a wild generosity and sense of justice; but, unhappily, in almost every one he managed to give deadly offence to the susceptible national spirit of Russia. Being a devoted admirer of the great Frederick, he gave back with impetuous haste all the advantages won in the Seven Years' War, sent home all the Prussian prisoners, restored the provinces torn from Prussia, and concluded peace and then an offensive and defensive alliance with his hero. Himself a Lutheran in his early years, he made little account of the religious etiquette of the Russian court, and still further alarmed the clergy by threatening to lay hands on the property of the church, while he grievously offended the soldiery by introducing the Prussian uniform and the severe Prussian drill. The ambition of Catherine would probably have been satisfied with the prospect of governing Russia through her husband, but he was too wayward a person to be an obedient instrument; and he soon publicly insulted her beyond forgiveness by compelling her to decorate his mistress, the Countess Woronzoff, with the order of St. Catherine. This and other matters, and the growing alienation of a long and distasteful married life, brought on a crisis. It became clear that they could not live together; and Catherine began to adopt precautionary measures in self-defence. She had little difficulty in

doing so most effectively. The Orloffs, influential persons in the Russian guards, were devoted to her; the eldest, Gregory, was her lover. Those men, with the help of the Princess Dashkoff, Count Panin (the tutor of her son Paul), and others, planned the overthrow of Peter. Early on the morning of the 9th July (1762), Catherine was awakened at the palace of Peterhof by Alexis Orloff with the injunction to act immediately; they had been betrayed. Accordingly, she set out for the capital, and finding Gregory Orloff on the spot, appealed to the guards, who were easily induced to raise the standard of revolt. In the church, the priests anointed her regent in the name of her son, while, outside, the Orloffs had her proclaimed empress in her own right. After that, going in procession through the streets she was joyously saluted empress of Russia. In the meantime, Peter, all unaware of what was going on, was busy drilling his favorite German guards at Oranienbaum. On proceeding to Peterhof he found that Catherine had vanished, and suspected the truth. He was urged to fight, but all his fortitude forsook him. Next day he abdicated, expecting freedom to retire to Holstein; but he was compelled to proceed to Ropscha, where on the 17th, the Orloffs, after an unsuccessful attempt to poison him, strangled him with their own hands in the most revolting manner. Of this part of the proceedings Catherine seems to have had no knowledge.

As soon as she was securely seated upon the throne, Catherine began to attend to the foreign interests of her empire. Here she zealously observed the traditions of Russia. One of her first steps (1763) was to expel the Saxon duke of Courland, and to put Biron, a creature of her own, in his place; and by ceaseless intrigue she so managed things in Courland, that it was eventually glad to be incorporated with the Russian empire (1795). Towards Frederick she took a threatening attitude at the beginning of her reign; but finding nothing offensive to herself in the correspondence of the king with her late husband, and seeing that great profit might be derived from the good-will of Prussia, she concluded with it an offensive and defensive alliance, which continued to the end of Frederick's reign.

It was chiefly with a view to Poland that this treaty of alliance was made. The first result of it was the advance of a Russian army to the Vistula to compel the election of Poniatowski, an old lover of Catherine, to the throne of Poland (1763). But this was only the beginning of troubles. The old question of the toleration of dissenters soon turned up; one confederation, that of Radom, was formed by a party of Polish nobles to enforce, and another, that of Bar, to resist toleration. Catherine supported the former. The confederation of Bar was defeated and broken up, and its members fled over the frontiers to Turkey and Austria (1768). The Turks, alarmed and incensed at the progress of Russia on Polish ground, fanatically rushed into a war (1768-1774) for which they were not prepared, and were disgracefully beaten both by land and sea. The Russian arms marched victoriously through Bessarabia, Moldavia, and Wallachia to the banks of the Danube; while a fleet, led chiefly by English seamen, sailed from Cronstadt round the coast of Western Europe into the Mediterranean, and after sweeping the Levant burned the Turkish fleet in Tchesme Bay (1770).

After the Turks had been so thoroughly disabled, Catherine had leisure once more to attend to the state of Poland. The liberum veto, the freedom of confederation, the want of a middle class, the want of union and of a healthy public spirit, the oppression and brutalizing of the peasantry, and many other causes, had reduced Poland to a state of incurable disease which it is impossible to describe. During the Seven Years' War the

Russian armies had incessantly marched unchallenged over the Polish territory; that splendid opportunity for shaking off the northern incubus was allowed to pass away. Lately, famine and pestilence had so ravaged the country that pigs and dogs devoured the unburied bodies of men; a loaf of bread could not be had for a hundred ducats. But it was for no benevolent feelings towards Poland that Catherine wished to interfere with its territory; instead of favoring the methods made towards political improvements, her aim was simply to prolong the state of anarchy till she was ready to enter upon as large a share of it as possible. Frederick was the first to suggest a partial partition of Poland as the best way out of many existing difficulties. The project was dropped for a time, till Catherine took it up, and invited Prussia and Austria to join in it. An agreement was at last come to (1772); and a common fund was raised to bribe the Polish diet, which gave its consent the following year. Catherine, in this and the two ensuing partitions, seized the lion's share, in all about two-thirds of the Polish territory. By the peace of Kainard-schi with the Turks (1774), who resigned all pretensions of supremacy over the Tartars in Southern Russia, Catherine was free to occupy all the northern shore of the Black Sea. One Tartar khan was expelled, and another was induced to abdicate; the Tartars were massacred, and a flourishing country reduced to a wilderness. The Crimea, Kuban, and Taman were finally annexed to the Russian empire (1783).

Towards 1787 Catherine began to entertain still more magnificent schemes of conquest. She made a progress as far as Kherson through the midst of flourishing towns, villages, and farms, by fine roads, amidst festivals and illuminations, all of which Potemkin had artificially extemporized in the wilderness, in order to convince her how flourishing the recent conquests were. One of the gates of Kherson bore the inscription, "This is the way to Byzantium." Catherine was going to fulfil the dreams of her French flatterers by chasing the Turk from Europe, and restoring the Byzantine empire. The Turks were accordingly provoked into a new war (1787-92), and were again beaten everywhere. Important events in Poland, however, arrested the progress of Catherine on the Danube, and induced her to make peace with Turkey (Jassy, 1792), by which the Dniester became the boundary between the two countries.

England and Prussia had been taking a hostile attitude to Russia. Under the furtherance of Hertzberg, the Prussian minister, many reforms had been introduced into Poland, and a constitutional hereditary monarchy established (1792). But a confederation of nobles, opposed to these salutary changes, invoked the aid of Catherine, who was only too glad of an opportunity to interfere; and as the progress of the French Revolution began to upset all existing political combinations, and to discredit everything like constitutionalism in governing quarters, Prussia found it prudent to acquiesce in the arrangements of Catherine. She restored all the old abuses and seized upon whatever territory pleased her, allowing Prussia a small share of it (1793). The resulting attempt at a national rising of Poland under Kosciuszko failed; the Russian armies entered the heart of Poland and stormed Warsaw (1794); and along with Austria and Prussia, Catherine effected the last partition in 1795.

In the domestic government of Russia, Catherine professed to act on the principles she had learned from her French teachers. Most of her plans, however, proved illusory, in a country where all the elements and conditions of an ideal theory of government were wanting, even if Catherine had been perfectly resolute in her

aims. The attempt to introduce a code of laws on the model of Montesquieu was a failure; but in the administration, especially the administration of justice, in the furtherance of education, of industry, and of commerce, real improvement seems to have been effected. All her schemes vitally suffered in two ways: from the absence of trustworthy public servants, and from the defects of her own character. In this, as in other reigns, bribery and corruption were prevalent to an extraordinary degree, and Catherine intrusted the government to her favorites and to upstarts, to the exclusion of the nobility. In the capital, at her court, and in her own circle there reigned the most systematic immorality, which she encouraged by her example. French admirers used to call her the Semiramis of the North. Mr. Carlyle calls her a female Louis Quatorze. She justified both comparisons by her beauty, her masculine ambition, and her summary disregard of virtuous restraint. One favorite was dismissed after another; but Potemkin eclipsed all others by the extraordinary union of qualities most requisite for success in Russia, — beauty, daring, extravagance, ambition, — and in the length of time his influence over Catherine continued. From 1775 till his death in 1791, that is, for a period of sixteen years, he was supreme; after Catherine's personal inclination for him had abated, he supplied her with new favorites and retained the power for himself, in all essential points directing Russian politics during that long period. To all her lovers she was munificent, not only during their season of favor, but after their dismissal, loading them with presents and pensions to such an extent, that altogether they are estimated to have cost Russia about £20,000,000. Towards the end of her reign discerning men began to fear that such extravagance, and the corruption attendant upon such a state of things, might lead to the exhaustion of the empire. In fact, the magnificence of her court, the marvellous extent of her empire, her foreign conquests, and the imposing position she held among the sovereigns of the world, only served to bring into more painful relief the moral corruption, the semi-barbaric violence, the hard-hearted cruelty, and systematic unscrupulousness which characterized the Russian court and the Russian policy. Things grew worse towards the end of her reign. The progress of the French Revolution damped all her sentimental enthusiasm for reform. The friend and correspondent of Voltaire and D'Alembert, and the patroness of Diderot, lived long enough to prohibit the publication of French works in Russia. She died of apoplexy in November 1796.

CATHERINE DE' MEDICI (1519-1589), the wife of one French king, and the mother of three, was born at Florence in 1519. She was a daughter of Lorenzo de' Medici, that ruler of Florence for whom Machiavelli wrote the *Prince*. Having lost both her parents at an early age, Catherine was sent to a convent to be educated; and she was only fourteen when she was married (1533) to the duke of Orleans, afterwards Henry II. It was her uncle, Pope Clement VII., who arranged the marriage with Francis I. Francis, still engaged in his life-long task of making head against Charles V., was only too glad of the opportunity to strengthen his influence in the Italian Peninsula, while Clement, ever needful of help against his too powerful protector, was equally ready to hold out a bait. During the reign of her husband, too (1549-1559), Catherine lived a quiet and passive, but observant life. Henry being completely under the influence of his mistress, Diana of Poitiers, she had little authority. This continued even after the accession of her son Francis II. Francis was under the spell of Mary Stuart, and she, little disposed to meddle with politics on her own ac-

count, was managed by her uncles, the cardinal of Lorraine and the duke of Guise.

On the death of Francis, Catherine became regent during the minority of her second son, Charles IX., and now found before her a career worthy of the most soaring ambition. The new king was only ten years old. France was falling into a most critical condition. The opposition between the Reformation and the old religion was now beginning to assume a pronounced and openly hostile character, and the struggle was much intensified by the fact that most of the nobles who supported the Reformation represented also the old cause of feudal resistance to the centralizing tendencies of the court. The House of Guise were at the head of the Catholic party; Coligny and the Prince of Condé were the leaders of the Huguenots. Michel l'Hôpital, who, by the neutrality of his position and the disinterestedness of his character, was the fittest to advise Catherine, recommended the national policy of taking no side in the contest, — by the enforcement of toleration, of civil reform, and of justice to all parties, to raise the Government above the region of controversy, and prevent civil war. Catherine took the advice in so far as to avoid siding decidedly with either party, but her character, and the habits of policy to which she had been accustomed, rendered her incapable of any noble aim. She had only one virtue, and that was her zeal for the interests of her children, especially of her favorite third son, the duke of Anjou. Like so many of the Italians of that time, who were almost destitute of a moral sense, she looked upon statesmanship in particular as a career in which finesse, lying, and assassination were the most admirable, because the most effective weapons. By habit a Catholic, but above all things fond of power, she was determined to prevent the Protestants from getting the upper hand, and almost equally resolved not to allow them to be utterly crushed, in order to use them as a counterpoise to the Guises. Thus she is, more than any one else, responsible for the thirty years of civil war that was thenceforward to devastate France. For a time her plan succeeded well enough. At the battle of Druex (1562) the Huguenots were defeated by the duke of Guise; and at the siege of Orleans, the duke himself, now her most formidable rival, fell by the hands of an assassin. She had undoubtedly become the most important personage in France, but rage and suspicion so possessed men's minds that she could no longer control the opposing parties, and one civil war followed another to the end of her life. But it is with the massacre of Bartholomew (24th August 1572) that her name will be especially associated in history. While the affection of the young king for Coligny inspired him with groundless confidence, Catherine decoyed the Protestant leaders to Paris by the prospect of a marriage between Henry of Navarre and her daughter Marguerite. Anxious for her own influence over Charles IX., and true to her favorite plan of perpetuating the feud between the Huguenot leaders and the House of Guise, she wrought upon the king's mind till he consented to the death of Coligny, while the unprincipled hate of the Guises and the fanaticism of the mob did the rest. In short, Catherine supplied all the preliminary conditions of the massacre, and then let loose the infuriated passions that were to consummate it. After the death of Charles in 1574, and the succession of Anjou under the name of Henry III., Catherine pursued her old policy; but as her influence is lost in that of her son, it is unnecessary to dwell upon it. She died in 1589, a short time before the assassination of Henry, and the consequent extinction of the House of Valois.

CATHERINE OF ARAGON (1485-1536), the first

queen of Henry VIII., and the youngest child of Ferdinand and Isabella of Spain, was born the 15th December 1485, while her mother was on her way to Toledo from the Spanish army, then engaged in the conquest of Granada. The first four years of her life were passed in the camp before Granada; after the taking of the city it became the capital and the residence of the court. Here, then, Catherine spent her youth, carefully educated by her mother, herself a woman of no common learning and ability, during a period of marvellous prosperity for Spain, while the Moors were being finally conquered, America was discovered, and the Spanish chivalry was in its very bloom. In 1501, being requested in marriage by Henry VII. for his eldest son Arthur, Catherine embarked at Coruña, landed at Plymouth the 2d October, and, with the usual pageantry, was united to Arthur the month following. Their marriage was of no long duration; in the April of next year Arthur died. His widow, however, continued to reside in England, as proposals were made and accepted for her betrothal to Henry, second son of Henry VII., now heir-presumptive to the throne. Catherine, already eighteen, was disinclined to an engagement with a boy of thirteen; nevertheless the ceremony of betrothal took place in 1503. The marriage did not take place till 1509, after the accession of Henry to the throne, a dispensation from the Pope having been procured. The early years of the marriage were happy enough. Henry was a handsome, affable, and jovial king, fond of magnificent display, covetous of distinction in the tilting ground, and ambitious of popularity. His wife had the good sense to humor him in his favorite diversions, while she herself lived a dignified self-denying life of almost conventual strictness, conscientious in the performance of her religious duties, devoted to her husband, kind to her friends, charitable to her enemies, and careful of the interests of her adopted country. In the year of Flodden (1513) she was regent of the kingdom during the absence of Henry in France, and performed the duties of that office with great courage and ability. But the repeated loss of children cast a gloom over those years. Three sons died almost as soon as they were born; Mary, a sickly child, born in 1516, was the only survivor.

It was not till 1527 that Henry's scruples as to the validity of his marriage with Catherine became public, though there can be no doubt his affections had been alienated from her long before. It was anticipated by Henry and Clement that the conventual habits of Catherine would have rendered it easy for her to retire from the throne, and spend the rest of her life in a monastery. But they were mistaken; however submissive she might be to her husband in everything else, and however ready to act charitably towards the minor irregularities of his conduct, she was resolved not to allow any doubt to be cast upon the legality of their marriage or the title to the throne of her daughter Mary, nor to surrender any of her rights as queen. This the Papal legate, Campeggio, soon found out on his arrival in England in 1528. After long hesitation, and much tortuous diplomatic manœuvring on the side of the Pope, a court, consisting of the legates Campeggio and Wolsey, was at last constituted, 28th May 1529, at Blackfriars, to hear the case of the royal parties. Catherine appeared only to protest against the legality of the court; and then after a solemn address to the king for justice, appealed to the Pope, and withdrew. Notwithstanding the proceedings for the divorce, and the fact that Henry had brought Anne Boleyn to live in the palace, Catherine and he were not quite separated till the beginning of 1531, when, finding he could not prevail upon her to withdraw her appeal to the Pope,

or in any way to give up her passive resistance, he commanded her to retire from Windsor. After that she never saw him again, nor her daughter Mary. Her residence was often changed; but it was principally at Ampthill. At length an open declaration of the Pope against Henry obliged the monarch to solve the difficulty by the assertion of the royal supremacy (1531). In a court held at Dunstable, Cranmer, recently appointed archbishop of Canterbury, pronounced the marriage of Henry and Catherine null and void (1553). Naturally, Catherine, though still as charitably disposed as ever towards Henry, treated this and all other attempts to deprive her of her rights with resolute contempt. Her health, which had begun to fail long before the divorce was agitated, now completely gave way. After writing a letter of forgiveness and of gentle admonition to her husband, and taking all the care she could of her faithful attendants, she died at Kimbolton Castle the 7th January 1536.

CATHERINE OF BRAGANZA, queen of Charles II. of England, was born at Villa Viçosa in Portugal, 25th November 1638. Her father, John, duke of Braganza, who was rightful heir to the crown of Portugal, then under Spanish sway, headed the revolt of 1640, which after many years' fighting succeeded, and became king of Portugal. Her mother was a woman of great ability, and governed Portugal after the death of her husband. She was penetrating enough to foresee the Restoration in England, and, some years before, proposed the marriage of Charles with her daughter Catherine, in order to secure an ally in the prolonged struggle against Spain. After the Restoration the marriage was agreed upon, not without much diplomatic manœuvring, especially on the side of Spain, which was naturally averse to it. The marriage treaty was very advantageous to England, as the Portuguese promised a dowry in money of £500,000, the towns of Tangier and Bombay (the first English possession in the East), and many privileges of trade with their colonial dependencies. On his marriage at Plymouth, 13th May 1663, Charles expressed himself highly pleased with his Portuguese bride. But the union did not prove a happy one. Catherine had been brought up in a convent, and therefore had not the tact and the manners suited to one of the most fashionable and profligate courts of Europe. But the principal fault lay in the heartless and inconstant nature of Charles. He insisted on bringing to court his abandoned mistress, Lady Castlemaine, and, when the queen expressed her indignation at the insult, made Clarendon himself lecture her on the duty of submission. Gradually Charles' neglect of her grew into a feeling of settled alienation, and after repeated humiliations her spirit was broken. Being a Roman Catholic, too, she was an object of suspicion and calumny during the Popery panics. Perhaps the only satisfaction she enjoyed from her connection with England was the decisive aid rendered by the country to her native land in its struggle against Spain. After a life of great retirement during the reign of James II. and the early part of that of William, she returned to Portugal in 1692. Some little time before her death (at the close of 1705), she acted with great ability in the capacity of regent to her brother, Don Pedro. She had no children.

CATHERINE OF VALOIS (1401-1437), consort of Henry V. of England, was born at Paris in 1401. She was most unfortunate in her early years; for her father, Charles VI., king of France, was subject to prolonged fits of insanity, and her mother, one of the most abandoned women of her time, neglected her children to such an extent that they were often without suitable food and clothes. At last, in one of his lucid intervals,

Charles had her children separated from their mother, and Catherine, the youngest of them, was sent to a convent to be educated. On his accession to the English throne in 1413, Henry V. asked Catherine in marriage; but as the proposal was coupled with the demand of a large dowry in money, and especially the restitution to England of the provinces once held in France, it was unceremoniously rejected. In the invasion of France which ensued, Henry proved himself so able to assert his claims, and the country had been thrown into such a state of distress and disorder, that the court of Charles, then under the control of Philip of Burgundy, was fain to comply with all the demands of the English king. Accordingly Henry, who had already seen and loved Catherine, received her in marriage at Troyes in 1420, and, along with her, the immediate possession of the provinces claimed, the regency of France during the life of his father-in-law, and the reversion of the sovereignty of France. Early next year Catherine was solemnly crowned at London. In December 1421, Henry VI. was born at Windsor. Catherine was again in France, when her royal husband died (1422). She returned to London with the funeral cortege; but, after taking some part in the arrangements connected with the regency during her son's minority, she almost disappears from the history of the country. The only remarkable circumstance of her subsequent life is her secret marriage. Her second husband, Owen Tudor, was sprung from a princely house of Wales, had followed Henry to his French wars, and had been made a squire of his body for bravery displayed at Agincourt. Subsequently, he became an officer in the queen's household, and in this capacity gained her affections. He seems to have been a man of high character; but as his position in England was of the lowest, the marriage was for many years kept a profound secret. The vexations the queen had to endure in consequence of its ultimate disclosure probably hastened her death, which took place in 1437. As is well known, her eldest son to Owen Tudor was created earl of Richmond, and, marrying Margaret Beaufort, the heiress of the house of Somerset and representative of the junior branch of John of Gaunt, became the father of Henry VII., and the ancestor of the Tudor line of kings.

CATHOLIC (general, universal), a designation adopted at a very early period by the Christian church to indicate its world-wide universality in contrast with the national particularism of Judaism. It has also been used by ecclesiastical writers, from Ignatius downwards, to denote the church as the depository of universally-received doctrine in contrast with heretical sects. In the latter or exclusive sense it is still claimed on the ground of historic continuity by the Roman Catholic Church; but the claim, in so far as it is exclusive, is, of course, not recognized by other Christian denominations. See **ROMAN CATHOLIC CHURCH**.

CATHOLIC APOSTOLIC CHURCH, a religious community often called "Irvingites," but not itself acknowledging any other name than that of "the Catholic Apostolic Church," which, the members say, belongs to them in common with the whole of baptized Christendom. The relation of the celebrated preacher Edward Irving to this community was, as they state it, somewhat similar to that of John Baptist to the early Christian church, *i.e.*, he was the forerunner and prophet of the coming dispensation, not the founder of a new sect; and indeed the only connection which Irving seems to have had with the existing organization of the Catholic Apostolic body was in "fostering spiritual persons who had been driven out of other congregations for the exercise of their spiritual gifts." Shortly after Irving's trial and deposition, certain persons were at some

meetings held for prayer designated as "called to be apostles of the Lord" by certain others claiming prophetic gifts. In the year 1835, six months after Irving's death, six others were similarly designated as "called" to complete the number of "twelve," who were then formally "separated" by the pastors of the local congregations to which they belonged to their higher office in the universal church on the 14th July 1835. This separation is understood by the community not as "in any sense being a schism or separation from the one Catholic Church, but a separation to a special work of blessing and intercession on behalf of it." The twelve were afterwards guided to ordain others,—twelve prophets, twelve evangelists, and twelve pastors, "sharing equally with them the one Catholic Episcopate," and also seven deacons for administering the temporal affairs of the Church Catholic. The central episcopacy of eight-and-forty was regarded as "indicated by prophecy," being foreshown in the forty-eight boards of the Mosaic Tabernacle. For ecclesiastical purposes the church universal is under their charge in twelve tribes; for Christendom is considered to be divided into twelve portions or tribes, each tribe being under the special charge of an apostle and his co-ministers, and the seat of the Apostolic College being at Albury in England.

For the service of the church a comprehensive book of liturgies and offices was provided by the "apostles;" and lights, incense, vestments, holy oil, water, chrism, and other adjuncts of worship have been appointed by their authority. The ceremonial in its completeness may be seen in the church in Gordon Square, London, and elsewhere. The daily worship consists of "matins" with "proposition" (or exposition) of the sacrament at 6 A.M., prayers at 9 A.M. and 3 P.M., and "vespers" with "proposition" at 5 P.M. On all Sundays and holy days there is a "solemn celebration of the Eucharist" at the high altar; on Sundays this is at 10 A.M. On other days "low celebrations" are held in the side-chapels, which with the chancel in all churches correctly built after apostolic directions are separated or marked off from the nave by open screens with gates.

CATILINA, **LUCIUS SERGIUS**, a member of an ancient patrician family of Rome, first appears in history during the proscription of Sulla, conspicuous among the ruthless band of murderers, slaying his inoffensive brother-in-law with his own hand, and torturing and mutilating the much-loved Gratidianus. His foul vices were unconcealed; he was believed to have made away with his wife and his son to win the profligate and wealthy Aurelia Orestilla; it was even suspected that he had been guilty of an intrigue with the Vestal Fabia. Nevertheless, in 66 B.C., he found himself qualified for the consulship, and only incapacitated by the impeachment brought against him by P. Clodius Pulcher for extortion during his government in Africa. Catiline would not brook even delay in his advance to power, and accordingly he formed a conspiracy, in which Autronius, Piso, and even, according to rumor, Crassus and Cæsar were concerned. The new consuls were to be murdered while offering up their vows on the 1st of January; and the fasces were to be seized by Catiline and Autronius. The plot failed, but only because the signal was given too hastily; and the discovery brought no punishment upon those implicated, for the intervention of a tribune was readily obtained. Soon after, Catiline, having bribed both judges and accuser, was acquitted in the trial for extortion. His scheme was forthwith immensely widened. The city was to be fired, and those who opposed the revolution were to be slain; all debts were to be cancelled; and there was to be a proscription of all the wealthy citizens. Among the conspirators were many men of the first rank and

influence. Arms and money were collected, soldiers were enlisted, and the assistance of the slaves was sought. But Catiline's hopes were again disappointed; once more he failed to obtain the consulship; and, moreover, it soon became apparent that one of the new consuls, Cicero, was mysteriously able to thwart all the schemes of the conspirators. He was, in fact, informed of every detail, through Fulvia, the mistress of Curius, one of the plotters, who was himself soon persuaded to turn informer. Before the next *comitia consularia* assembled, the orator had given so impressive a warning of the danger which was impending, that Catiline was once more rejected, and the consuls were invested with absolute authority. The other consul, C. Autronius, being absent in Macedonia, Cicero had everything in his own hands. On the 8th of November, he again rose in the senate to make so vigorous an attack upon Catiline that he rushed from the temple, amid the curses of the senators, and fled to the army. Next day Cicero awoke the terror of the people by a second declaration which he delivered in the Forum. Still not one of the rebels deserted, though a free pardon and great rewards were offered to informers,—a remarkable proof, it has been said, of the wretchedness and discontent of the lower orders at that time. It has also, however, been suggested that there existed no conspiracy of a kind concerning which any member of the lower orders could give information. Legal evidence of the plot was, nevertheless, obtained by the means of the Allobrogian ambassadors, implicating Lentulus, Cethegus, and Statilius, who, on the nones of December, were condemned to be strangled by the common executioner in the vile dungeon of the Capitol. This act of speedy vengeance, which was opposed as illegal by Julius Cæsar, was strenuously advocated by Cato and, indirectly, by Cicero. Thus a heavy blow was dealt to the cause of Catiline, who, in the beginning of 62 B.C., saw his legions, partially armed and diminished by desertion, shut in between those of Metellus Celer and Antony. Near Fæsulæ he hazarded battle with the forces of the latter, commanded by M. Petreius, for the proconsul was or pretended to be ill. So terrible an engagement ensued that the bravest of the victors were slain, and of the conquered not one was taken alive. Catiline's body was found far in advance of his own ranks, amidst a heap of the enemy whom he had slain.

CATLIN, GEORGE (1796–1872), a writer on the North American Indians, was born at Wilkesbarre, Luzerne Co., Pennsylvania, in 1796. He was brought up to the law, and practised that profession in Philadelphia for two years; but art was his favorite pursuit, and forsaking the law he established himself at New York as a portrait painter. In 1832, his attention having been called to the fact that the pure American race was disappearing before the march of civilization, he resolved to rescue from oblivion the types and customs of this singular people. With this object in view he spent many years among the Indians in North and South America. He lived with them, acquired their languages, and studied very thoroughly their habits, customs, and mode of life, making copious notes and many studies for paintings. In 1840 he came to Europe with his collection of paintings; and in the following year he published at London a work on the *Manners, Customs, and Condition of the North American Indians* in two volumes, illustrated with 300 engravings. In 1844 he published *The North American Portfolio*, containing 25 plates of hunting scenes and amusements in the Rocky Mountains and the prairies of America. This was followed in 1848 by *Eight Years' Travels and Residence in Europe*, in which Catlin narrates the adventures of three different parties of American Indians, whom he

had introduced to the courts of England, France, and Belgium. In 1861 he published a curious little volume, in "manograph," entitled *The Breath of Life*, on the advantage of keeping one's mouth habitually closed, especially during sleep; and in 1868 appeared his *Last Rambles amongst the Indians of the Rocky Mountains and the Andes*. He died in Jersey City, New Jersey, December 22, 1872.

CATMANDOO, the capital of Nepal, in India. See KHATMANDU.

CATO, M. PORCIUS, surnamed *Sapiens*, *Priscus*, *Censorius*, or *Major*, was born at Tusculum in the year 234 B.C., of an ancient plebeian family, noted for some military services, but not ennobled by the discharge of the higher civil offices. This man may be taken as a type of the genuine Roman character at the critical moment when the free state was in its fullest vigor, but was threatened with sudden and rapid decline. His early youth fell in with the period of Hannibal's invasion of Italy. Before he had reached middle age Rome had escaped from imminent danger of destruction, and had entered upon its career of universal conquest beyond the limits of the Italian peninsula. He was bred, after the manner of his Latin forefathers, to agriculture, to which he devoted himself assiduously when not engaged in military service. But having attracted the notice of L. Valerius Flaccus, a magnate of the city, he was brought to Rome, and became successively *quæstor* (204), *ædile* (199), *prætor* (198), and *consul* (195). Meanwhile he served in Africa under Scipio, and took part in the crowning campaign of Zama (202). He had a command in Sardinia, where he first showed his strict public morality, and again in Spain, which he reduced to subjection, and gained thereby the honor of a triumph (194). In the year 191 he acted as military tribune in the war against Antiochus, and contributed to the great revolution by which Greece was finally delivered from the encroachments of the East, and subjected to the dominion of the West. From this period the morals and principles of the Romans became fatally affected by their contact with the advanced and corrupt civilization of the Hellenic world. Cato was among the first of his countrymen to perceive the danger, and to denounce it. His character as an able soldier was now well established; and henceforth he preferred to serve the state in the Forum at home. For several years he occupied himself in scrutinizing the conduct of the candidates for public honors, and whenever he seemed to detect in them a decline from the stainless virtue of the olden time, he persistently opposed their claims. He questioned the "pretended battles" of Minucius Thermus, and baffled his demand for a triumph (190); he denounced the "peculation" of Acilius Glabrio, the conqueror of Antiochus (189); he declaimed against Fulvius Nobilior for meanly flattering his soldiers, and for carrying about with him in his campaigns a "frivolous verse-writer," such as Ennius. If he was not personally engaged in the prosecution of the Scipios (Africanus and Asiaticus) for corruption, it was by his spirit that the attack upon them was animated. Africanus, indeed, refused to reply to the charge, saying only, "Romans, this is the day on which I conquered Hannibal," and the citizens absolved him by acclamation; nevertheless, so marked was the blot which Cato had hit in the character of the self-seeking commanders of the time, that Africanus himself found it necessary to retire self-banished to his villa at Liternum.

But Cato was engaged in making head against corruptions more deeply seated and more widely prevalent than these. The pride of conquest, the infection of foreign manners, and the dissolution of national ideas and prejudices had made formidable inroads upon the nar-

row simplicity of the ancient Romans. Both the Etruscans and the Greeks were imbued with a more refined and artificial culture; and with their higher education and enhanced power of persuasion, both these peoples were now exerting a powerful influence upon the minds of their conquerors. Cato conceived it to be his special mission to resist this invasion. It was in the discharge of the censorship that his character as a maintainer of primitive discipline was most strongly exhibited, and hence that he derived the title by which he is most generally distinguished. He revised with unsparing severity the lists of senators and knights, ejecting from either order the men whom he judged unworthy of it, either from their want of the prescribed means, or from notorious crimes or vices. The expulsion of the great imperator L. Quinctius Flaminius was a splendid example of his rigid justice. He regulated with pedantic strictness the expenses of the table, and also of dress and personal ornament, especially of the women. He contended gallantly, but even more ineffectually against bribery at the public elections; and though he gained little success in the crusades to which he thus religiously devoted himself, it may be allowed that the example of the great censor did actually raise and maintain a higher spirit of public morality among his contemporaries, and gave encouragement and strength to many struggling consciences even in later generations.

From the date of his censorship (184) to his death in 149, Cato held no public office at home or abroad; but continued to the last to distinguish himself in the senate as the persistent opponent of the new ideas and the men who supported them.

The great principle of Cato's life was to do everything by rule. With him the individual life was a continual discipline, and public life was the discipline of the many. He regarded the individual householder as the germ of the family, the family as the germ of the state. All his actions were measured, and every one assigned to its proper place and hour; he was a great economist of his time and thereby enabled himself to get through a great variety of work, though it all lay within narrow limits. He exacted similar application from his dependents, and proved himself a hard husband, a strict father, a severe and cruel master. There was little difference apparently, in the esteem in which he held his wife and his slaves; his pride alone induced him to take a deeper interest and indulge a warmer feeling in regard to his sons. It may be remarked, however, that among the Romans themselves there was little in this behavior which seemed worthy of censure; it was respected rather as a traditional example of the old Roman manners. In the remarkable passage in which Livy describes the character of Cato (*Hist.* xxxix. 40), there is no word of blame for the rigid discipline of his household.

CATO, M. PORCIUS (commonly distinguished from his great-grandfather, Cato the Censor, by the title of *Uticensis*, from the place of his death and the renown attending upon it), furnishes a remarkable specimen of the effect of Hellenic training upon the hard and narrow but determined spirit of the old Latin race. While he inherited from his illustrious ancestor, and from the general discipline of his family through many generations, a sour and severe temper, a pedantic adherence to form and usage, and an utter lack of sympathy with any temper or habits alien from his own, his feelings had been deepened, if not expanded, by the study of the Greek philosophy. As a devoted follower of the Stoic teaching he had attained to very lofty principles, and made them, with almost undeviating consistency, the rule of his life and conduct.

Cato was born in the year 95 B.C., and on the death of his parents was brought up in the house of his uncle,

Livius Drusus, who was just then beginning to incite the Italians to claim a share in the Roman franchise and its privileges. This was the commencement of the intestine troubles of the Republic, and the whole of Cato's after-life was passed amidst domestic dissensions and civil wars. In his early years he expressed with striking boldness his disgust at the cruelties of Sulla. The priesthood of Apollo, to which he early consecrated himself, commended him to a life of rigid observances, and gave a great impulse to his fervid imagination. He learned the principles of the Stoics under a Greek teacher named Antipater, but his oratory in the Forum represented only the harsh, vehement, and caustic type of his Roman countrymen. After fighting in the ranks against Spartacus he became a military tribune, 67 B.C., and served a campaign in Macedonia. On his return he obtained the quaestorship, and distinguished himself for his zeal and integrity in the management of the public accounts, which recommended him for a provincial appointment in Asia. Again he acquitted himself with marked disinterestedness, and conceived a disgust equal to that of his great ancestor at the corruption of the public men with whom he came in contact. He saw, however, much to admire in the discipline which Lucullus had enforced in his own Eastern command, and he supported his claims to a triumph, while he opposed the inordinate pretensions of Pompeius. When the favor of the nobles gained him the tribuneship he exerted himself to convict Murena, one of their chief men, of bribery. Cicero, more pliant than himself, defended the culprit and obtained his acquittal; but Cicero was glad to avail himself of the firmness and stern justice of his recent adversary, when he urged the execution of Catiline's associates. By this time Cato had become a great power in the state. Though possessed of little wealth and no family influence, his character for unflinching resolution in the cause of the ancient free state rendered him a valuable instrument in the hands of the nobles, perplexed as they were by the open hostility of Cæsar and the oppressive patronage of Pompeius and Crassus. They were the better disposed, perhaps, to make use of him from the oddity of his unpractical temper, which made it the easier for them occasionally to disclaim and repudiate his assistance. They did not, indeed, find him so complacent a dupe as Cicero, nor did they treat him more faithfully. They thrust him into the snare prepared for him by the triumvirs, and let him be sent on a mission of gross injustice towards the king of Cyprus, which his pedantic loyalty to the state forbade him to refuse. He continued to struggle against the combined powers of the triumvirs in the city, and became involved in scenes of violence and riot, while desperately resisting the superior force of their turbulent adherents. He succeeded, however, in obtaining the prætorship in 54, in which office he strenuously exerted himself in the hopeless and thankless task of suppressing bribery, in which all parties were equally interested. Resolved not to stoop to such practices himself, he failed to attain the consulship; and he had made up his mind to retire from the arena of civic ambition when the civil war broke out in 49.

Cato had now persuaded himself that the sole chance for the free state lay in conceding an actual supremacy to Pompeius. Accordingly he did not scruple to support the unjust measures of the nobles against Cæsar, which gave too fair a color to the invasion of Italy. Cato was, indeed, little prepared for his commander's flight across the Adriatic, and the surrender of the city, the government, and therewith the ostensible right, to the victorious rebel. Though he followed Pompeius to Epirus he found little satisfaction in his camp, where the fugitives were loudly threatening a bloody vengeance

on their enemies. He excused himself from accompanying the forces of the senate into Thessaly, by which he escaped being present at the battle of Pharsalia. After that great disaster, when his chief had abandoned his party and provided only for himself, he too felt at liberty to separate himself from the main body of the republicans, and conducted a small remnant of their forces into Africa. His march through the deserts of Libya gained him immortal glory. The struggle between the senate and Cæsar was renewed in the African province. Cato shut himself up in Utica, and prepared to defend it as the most important post for communication with Italy. The battle of Thapsus, and the total rout of the senatorial forces, now threw upon him the whole weight of maintaining a cause which had become evidently desperate. The people of the place were anxious to make terms with the victor; but he would not trust the Roman citizens and soldiers to the clemency of the heir of Marius. Hitherto the civil wars of Rome had been continually marked by bloody retaliation; even if Cæsar himself were disposed to mercy he might not be able to restrain the violence of his allies; and it was rumored that terrible execution had been inflicted upon the captives of the last battle. Accordingly Cato determined to keep the gates closed till he had sent his adherents off by sea. While the embarkation was in progress his own demeanor continued calm and dignified. He supped familiarly with his friends, discoursing with them, as was his wont, on philosophical topics. On being informed that the last of the transports had left the port he cheerfully dismissed his attendants, and soon afterwards stabbed himself on his couch. Assistance was promptly offered, but he refused to avail himself of it, and so perished, much, it may be said, to his own fame, but with little advantage to his country (46 B.C.)

CATO, DIONYSIUS, a name concerning which it is doubtful whether it be the name of the author, or merely part of the title of a small work, consisting of moral apophthegms, chiefly in hexameters. The name usually given is simply Cato, but Dionysius is added on the authority of a MS. declared by Scaliger to be of great antiquity.

CATS, JACOB (1577-1660), one of the oldest, and long the most popular, of Dutch poets and humorists, was born at Brouwershaven in Zeeland.

Cats, who lived and reigned with Hooft and Vondel in the golden age of Flemish literature, was an exceedingly prolific writer. His versification is smooth and regular; although somewhat monotonous; his style is homely and familiar; and the naiveté and simplicity of most of that he says, and of his manner of saying it, are peculiarly attractive. He never soared, or tried to soar; he was content to plod on, scattering around him as he went the blunt straight maxims, the shrewd little moralities, the excellent pieces of advice, which his countrymen — of whose practical and prosaic genius he is the highest literary representative — have found so pleasant and so full of profit.

CATSKILL or KAATSKIL MOUNTAINS, a group of moderate elevation belonging to the great Appalachian system of North America. They are situated for the most part in Greene County, New York, and are mainly remarkable for the beauty of their scenery and the magnificence of the outlook over the neighboring country. The principal summits are Round Top, High Peak, and Overlook, which attain a height of nearly 4000 feet. To the north of High Peak is situated the celebrated gorge or "clove" of Catterskill, with its waterfall. The cascades are three in number, and the total height is about 300 feet; but the supply of water is often deficient, and has even to be managed by the

hotel proprietors. The place can easily be reached from Mountain House, an hotel which is built at an elevation of 2500 feet, on the front of Pine Orchard Mountain.

CATSKILL, the capital of Greene county, N. Y., is situated on the West Shore railroad, and on the Hudson river, thirty-five miles below Albany, in the midst of scenery among the most picturesque and romantic in the Eastern States. It has one daily and two weekly papers, three banks, a court-house, eight churches, the Catskill Academy, graded schools, stores, private residences, and a number of large and handsomely appointed hotels. The manufacturing industries carried on embrace hosiery, woolen goods, shoddy, lumber, flour, engines and machinery, medical preparations, etc. Catskill is a great resort during the summer season for tourists and travelers. Population, 5,000.

CATTACK [CUTTACK], a district of British India, in the province of Orissa, under the jurisdiction of the Lieutenant-Governor of Bengal. It is bounded on the N. by the district of Balasor, from which it is separated by the Baitarani and Dhánrá rivers; on the E. by the Bay of Bengal, on the S. by the district of Purí, and on the W. by the Orissa Tributary States.

Cattack district takes its character from its rivers. These issue in magnificent streams through three gorges.

The district has an area of 3178 square miles, with a total population of 1,494,784, 95 per cent. of whom, or 1,430,040, are Hindus. The rest consist of Muhammadans, 40,013; Christians, 2314; and persons of unspecified religion, 22,398. The last comprise the aboriginal tribes, who here, as elsewhere, cling to their mountains and jungles. They chiefly consist of the Bhumij, Tála, Kol, and Savar peoples, the Savars being by far the most numerous, numbering 16,589 souls. They are regarded by the Orthodox Hindus as little better than the beasts of the wildernesses which they inhabit. Miserably poor, they subsist for the most part by selling firewood or other products of their jungle; but a few of them have patches of cultivated land, and many earn wages as day laborers to the Hindus.

Only three towns in Cattack district contain upwards of 5000 inhabitants, viz., Cattack, the capital, 50,878; Jájpur, 10,753; Kendrápára, 10,682. Jájpur was the capital of Orissa under its Hindu kings; it is still considered a sacred town, and thousands of pilgrims annually flock to it.

Rice forms the staple product of the district; its three varieties are early rice, winter rice, and spring rice. The other cereal crops consist of *mándúa* (a grass-like plant producing a coarse grain resembling rice), wheat, barley, and *Chiná*, a rice-like cereal. *Suán*, another rice-like cereal, not cultivated, grows spontaneously in the paddy fields.

CATTACK, the most important town in the above district, and the capital of the province, is situated on the tongue of land where the Mahánadí first bifurcates, throwing off the Kátjurí on its southern and the Birúpá on its northern bank. Cattack city formed one of the five royal strongholds of ancient Orissa, and was founded by a warlike prince who reigned from 953 to 961. Its native kings protected it from the rivers by a masonry embankment several miles long, built of enormous blocks of hewn stone, and in some places 25 feet high. A fortress defended the northwest corner of the town, and was captured by the English from the Marhattás in October 1803. It is now abandoned as a place of defence.

CATTARO, the chief town of a circle in the Austrian kingdom of Dalmatia, situated on a narrow ledge between the mountains of Montenegro and the Bocca di Cattaro, a winding and beautiful inlet of the Adriatic. It is strongly fortified towards both the sea and the land,—

towards the sea by the fortress of Castelnuovo, at the mouth of the gulf, and towards land more especially by the Castle of San Giovanni on the heights; the long lines of wall from this castle to the town form a striking feature in the landscape.

CATTERMOLE, GEORGE (1800–1868), an English painter, chiefly in water-colors, was born at Dickelburgh, near Diss, Norfolk, in August 1800.

CATTI, or CHATTI, a powerful and warlike German nation, who, though defeated by Drusus, Germanicus, and other Roman generals, were never wholly subjugated, till in the 4th century they disappeared among the Franks. They inhabited a district extending from the Weser on the E. to the Rhine on the W., and bounded on the S. by the Agri Decumates.

CATTLE, a term applied to the various races of domesticated animals belonging to the genus *Bos*, known also as Oxen. They have been divided into two primary groups, the humped cattle or zebus (*Bos indicus*) of India and Africa, and the straight-backed cattle (*Bos taurus*), which are common everywhere. By many naturalists these groups have been regarded as mere races of the same species, and it is a well-ascertained fact that the offspring arising from the crossing of the humped and unhumped cattle are completely fertile; but the differences in their osteology, configuration, voice, and habits are such as to leave little doubt of their specific distinctness. Oxen appear to have been among the earliest of domesticated animals, as they undoubtedly were among the most important agents in the growth of early civilization. They are mentioned in the oldest written records of the Hebrew and Hindu peoples, and are figured on Egyptian monuments raised 2000 years before the Christian era; while the remains of domesticated specimens have been found in the Swiss lake-dwellings along with the stone implements and other records of Neolithic man. In infant communities an individual's wealth was measured by the number and size of his herds — Abram, it is said, was rich in cattle; — and oxen for a long period formed, as they still do among many Central African tribes, the favorite medium of exchange between nations. After the introduction of a metal coinage into ancient Greece, the former method of exchange was commemorated by stamping the image of an ox on the new money; while the same custom has left its mark on the languages of Europe, as is seen in the Latin word "pecunia" and the English "pecuniary," derived from "pecus," cattle. The value attached to cattle in ancient times is further shown by the Bull figuring among the signs of the zodiac; in its worship by the ancient Egyptians under the title of Apis; in the veneration which has always been paid to it by the Hindus, according to whose sacred legends it was the first animal created by the three divinities who were directed by the supreme Deity to furnish the earth with animated beings; and in the important part it was made to play in Greek and Roman mythology. The Hindus were not allowed to shed the blood of the ox, and the Egyptians could only do so in sacrificing to their gods. Both Hindus and Jews were forbidden, in their sacred writings, to muzzle it when treading out the corn; and to destroy it wantonly was considered a public crime among the Romans, punishable with exile.

The domestic cattle of Europe, of which there are at least fifteen British, and a considerably larger number of Continental breeds, have been, according to Professors Nilsson and Rüttimeyer, who have specially studied this subject, derived from at least three distinct species or races — *Bos primigenius*, *Bos longifrons*, and *Bos frontosus*. The first of these, the Urus, would seem, from its remains, to have been domesticated

among the Swiss lake-dwellers, — abounding then, and down to historic times, in the wild state, throughout the forests of Europe. Cæsar describes it as existing, in his time, in the Hercynian Forest, in size almost as large as an elephant, but with the form and color of a bull; and it is mentioned by Heberstein so late as the 16th century as still a favorite beast of chase. The name Urus, applied to it by the Romans, is derived from Ur, a root common to the Indo-European languages, and signifying original, primitive; and may be traced in the Thur of Poland, Stier of the Germans, and the Latin Taurus, as also in various names of places, as the Canton of Uri, Thurigian Forest, Turin, and Tours. Several breeds of cattle, as the Freisland of the Continent, and the Pembroke of England, are supposed to have sprung from this source; while the so-called wild cattle of Britain (*Bos taurus* var. *Scoticus*) make the nearest approach, of living forms to the Urus. This breed is of a white color, except the tips of the horns, which are dark, and the ears and muzzle, which are either black or brownish red. Uniformity in color, however, is secured by the slaughter of all calves which differ from the pure type. British wild cattle now exist only in Cadzow Forest, Chillingham Park, Lyne Park, and Chartley, in all of which they are strictly preserved.

It is still a matter of controversy whether these wild cattle are the unsubdued although the degenerate, descendants of the mighty Urus, or merely the offspring of a domestic breed run wild, which have reverted somewhat to the ancient type.

Bos longifrons, according to Nilsson, existed in the wild state in Sweden; but Rüttimeyer holds that there is not sufficient evidence to prove that it ever existed otherwise than domesticated in Central Europe. It seems to have been the most common race of domestic cattle among the ancient lake-dwellers, and several of the existing Swiss breeds are believed to be derived from it.

Bos frontosus was somewhat larger than *B. longifrons*, with which it coexisted in certain districts of Scandinavia. Its remains are found chiefly in the lake-dwellings of the Bronze period, although occurring sparingly in those of earlier date. They have also been found in Irish crannoges; and Nilsson regards it as the progenitor of the present mountain cattle of Norway.

The breeds and sub-breeds produced from those ancient races are exceedingly numerous. "In Britain," says Youatt, "they are almost as various as the soil of the different districts, or the fancies of the breeders." This variety may in some degree be attributable to their being the descendants, in all probability, of more than one species, to slight differences in the climate and pasturage of different districts, or to the sudden appearance of what Darwin has termed "spontaneous variations;" but it is beyond doubt mainly due to the long-continued and careful selection of the breeder. The British forms, a detailed account of which will be found under the article AGRICULTURE, may be conveniently arranged in three classes:—(1.) *Polled Cattle*, an artificial variety which may be produced in any breed by selection; thus the polled cattle of Galloway had small horns so late as the middle of the last century, but by only breeding with bulls of the shortest horns, the grandfather of the present earl of Selkirk succeeded entirely removing those appendages; (2.) *Short-horned Cattle*, the descendants of *Bos longifrons*, represented in greatest purity by the Welsh and Highland cattle, and probably differing little from the cattle found in Britain from the Polished Stone age to the end of the Roman period; these were afterwards driven with their masters from the open country to the hilly districts, before the Saxon invaders, who probably brought with them (3.) the *Long-horned*

Cattle, larger than the preceding, and of a red and white color, which have given rise to those breeds of cattle that now occupy the less elevated and more fertile tracts of England. Those Saxon cattle may be regarded as representing the *primigenius* type. The long and short horned varieties, however, interbreed freely, so that in many of our breeds the two types are inextricably mixed.

Of Continental forms the Hungarian is conspicuous from its great size, and the extent of its horns, which often measure 5 feet from tip to tip. The cattle of Friesland, Jutland, and Holstein form another large breed, and these, it is said, were introduced by the Goths into Spain, thus becoming the progenitors of the enormous herds of wild cattle which now roam over the Pampas of South America. The latter, it is alleged by Spanish writers, have all sprung from seven cows and a bull brought from Andalusia to the city of Assuncion in Paraguay, about the year 1556. They are widely spread over the plains of that continent, but are most numerous in the temperate districts of Paraguay and La Plata—a fact which bears out the view taken by Darwin, that our oxen are the descendants of species originally inhabiting a temperate climate.

Oxen, especially in Britain, have come to be regarded as dull and stupid animals, but this is only true of such breeds as are reared solely for fattening and killing. The wild cattle of Chillingham, and the semi-wild herds that abound on the plains of South America, show no lack of sagacity in avoiding threatened danger, or in combining to meet a common foe; while the *backley* of the Kaffres shows how susceptible they are of education. Wherever, indeed, the ox is employed as a beast of burden or of draught, and it is so in most countries, its intelligence is scarcely inferior to that of the horse, while it surpasses the latter in docility and in the patient endurance of toil.

The period of gestation in the cow is nine months, when she usually produces a single calf; occasionally, however, two are born, and when these are of different sexes, the female is almost invariably barren, and is known as a "free-martin," that is, a cow free for fattening, from the Scotch word "mart," signifying a fattened ox.

Humped cattle are found in greatest perfection in India, but they extend eastward to Japan and westward to the African Niger. They differ from the European forms not only in the fleshy protuberance on the shoulders, but in the number of sacral vertebræ, in the character of their voice, which has been described as "grunt-like," and also in their habits; they seldom seek the shade, and never go into the water and there stand knee-deep like the cattle of Europe. They now exist only in the domesticated state, and appear to have been brought under the dominion of man at a very remote period, all the representations of the ox on such ancient sculptures as those in the caves of Elephanta being of the humped or zebu form. There are several breeds of the zebu, the finest occurring in the northern provinces of India, where they are used for riding,—carrying, it is said, a man at the rate of six miles an hour for fifteen hours. White bulls are held peculiarly sacred by the Hindus, and when they have been dedicated to Siva, by the branding of his image upon them, they are thenceforth relieved from all labor. They go without molestation wherever they choose, and may be seen about Eastern bazaars helping themselves to whatever dainties they prefer from the stalls of the faithful. See AGRICULTURE.

CATTOLICA, a town of Sicily, in the province of Girgenti, and 15 miles north-west of the town of that name. In the vicinity there are extensive deposits of sulphur and rock salt. Population, 6380.

CATULLUS, C. VALERIUS, one of the most brilliant and original among Latin authors, belongs to the Ciceronian age, and is one of the two poets whose works adorn and illustrate the last years of the Roman republic. Our knowledge of his life is almost entirely derived from his own writings. The few statements concerning him which have been received on external evidence require to be confirmed or corrected by reference to allusions contained in these writings. The most important of these external evidences are the statements of Jerome, in the continuation of the Eusebian *Chronicle*, under the year 87 B.C.; and under 57 B.C. Questions have been raised, and variously answered, in regard to the correctness both of the names assigned to the poet, and of the dates of his birth and death given in these passages. Although he appears to speak of himself in his poems only by the name of Catullus, there is no controversy as to the Gentile name, *Valerius*. Suetonius, in his *Life of Julius Cæsar* (ch. 73), mentions the poet by the names "Valerius Catullus." Other persons who had the *cognomen* Catullus belonged to the Valerian gens. Among these, the best known is M. Valerius Catullus Messalinus, one of the *Delatores* in the reign of Domitian.

The testimony of inscriptions shows, further, that this name was common in the native province of Catullus, and belonged to other inhabitants of Verona, besides the poet and his family. Scholars are still divided in opinion as to whether his *prænomen* was *Gaius* or *Quintus*. In the best MSS. the volume is called simply *Catulli Veronensis liber*, and this is the title which his English editor, Prof. Robinson Ellis, adopts. For the name *Gaius* we have the undoubted testimony, not only of Jerome, which rests on the much earlier authority of Suetonius, but also that of Apuleius. A more important question is raised concerning the dates of the poet's birth and death. It is quite certain, from allusions contained in the poems, that the date of his death given by Jerome (57 B.C.) is wrong, and that Catullus survived the second consulship of Pompey and was present in August of the following year at the prosecution of Vatinius, by Licinius Calvus. We have certain evidence that Catullus lived till the month of August 54 B.C., but there is no allusion in his poems to any event of a later date than the prosecution of Vatinius. Some of the poems may very probably have been written during his last illness.

If he died in 54 B.C. or early in 53 B.C. there must be a further error either in the first or the second of Jerome's statements. Catullus must either have been born later than 87 B.C. or have lived to a greater age than thirty.

The statement that he was born at Verona is confirmed by passages in Ovid and Martial. Pliny the elder, who was born at Como, speaks of Catullus in the preface to his *Natural History*, as his "countryman" (*conterraneus*), and the poet speaks of Verona as his home, or at least his temporary residence, in more than one place.

His occasional residence in his native place is further attested by the statement of Suetonius that "Julius Cæsar accepted the poet's apology for his scurrilous verses upon him, invited him to dine with him on the same day, and continued his intimacy with his father as before." As this incident could only have happened during the time that Julius Cæsar was Pro-cousul, the scene of it must have been in the Cisalpine province, and at the house of the poet's father, in or near Verona. The verses apologized for were those contained in poems xxix. and lvii., the former of which must have been written after Cæsar's invasion of Britain, so this interview probably took place in the winter of 55-54 B.C.

The fact that his father was the host of the great proconsul, and lived on terms of intimacy with him, justifies the inference, that he was, in wealth and rank, one of the principal men of the province, an inference confirmed by the social position which Catullus himself assumed in Rome, and by his enjoyment of property independent of his father during his father's lifetime. The only other important statement concerning the poet's life which rests on external authority is that of Apuleius, that the real name of the Lesbia of the poems was Clodia. One other statement, not concerning the poet's life, but concerning the reputation which he enjoyed after his death, is given in the *Life of Atticus* by Cornelius Nepos. It is to the effect that he regarded Lucretius and Catullus as the two greatest poets of his own time.

The volume of poems which Catullus collected and published before his death consists of 116 pieces, varying in length from 2 to 408 lines, the great mass of them being, however, short pieces, written in some lyric or iambic, or in elegiac metre. These poems are not arranged either in chronological order or in accordance with the character of the topics with which they deal. The only principle which seems to have guided the author in his arrangement was that of placing the longer poems, of a less personal and fugitive character, in the middle of the volume, while the first part contained those written in lyric or iambic metres, and the latter part consisted entirely of verses written in the elegiac metre. Many of the last treat of the same topics and refer to the same persons as those forming the subject of the short poems at the beginning of the volume. The elegiac, as well as the phalæcian and iambic metres, were employed by him as the vehicle both of his tenderest and his bitterest feelings. Though no chronological order is observed, yet internal evidence enables us to determine the occasions on which many of the poems were written, and the order in which they followed one another. They give a very vivid image of various phases of the poet's life, and of the strong feelings with which persons and things affected him. They throw much light also on the social life of Rome and of the provincial towns of Italy in the years preceding the outbreak of the second civil war. Apart from their poetic charm, they thus possess the interest of bringing vividly before us some aspects of one of the most critical epochs in the history of the ancient world. In this respect they may be compared with the letters of Cicero, which record the impression produced by the same time on a man of similar susceptibility of feeling and keenness of apprehension, but of character and pursuits as far removed as possible from those of the provincial poet, who modestly contrasts the greatness of the "most eloquent of the descendants of Romulus" with his own humble pretensions.

CAUCASIA, a governor-generalship of the Russian empire, which extends from about $38^{\circ} 40'$ to $46^{\circ} 40'$ N. lat., and includes the whole range of the Caucasus, the vast steppes that lie to the north of the mountains between the Sea of Azoff and the Caspian, and all the Russian territory to the south. On the south side it is bounded by the Turkish empire and Persia, while on the north it is conterminous with Astrakhan and the province of the Don army. The principal division is into Cis-Caucasia or the European portion, and Trans-Caucasia or the Asiatic,—the watershed of the Caucasus having recently been adopted as the line of partition. Cis-Caucasia thus includes the government of Stavropol, the Kuban district, the Terek district, and Daghestan; while Trans-Caucasia comprises the governments of Tiflis, Baku, Elisabethpol, Erivan, and Kutai, and the circles of Sukhum, Sakatal, and the Black Sea or

Chernomorsk. The total area is 172,837 square miles, and the population is estimated at 4,893,332.

CAUCASUS, a great chain of mountains, extending from the Black Sea to the Caspian. It has a general direction from W.N.W. to E.S.E., which it preserves with great uniformity for so extensive a chain, having a range of nearly 700 English miles in length, from its commencement near Anapa on the Black Sea, till it sinks into a range of low hills, as it approaches Baku on the Caspian. Its width on the other hand is comparatively small, not exceeding in general about 70 or 80 miles, and even where widest not attaining more than 120 miles.

The origin of the name is unknown. It was employed by the Greeks in very early times, and has continued in use among geographers ever since. But no general name for the whole chain is known to the tribes that inhabit it, or to those that immediately adjoin it. Nor does it appear that any of the local or native designations of portions of the mountains known by this name are such as may reasonably be supposed to have given rise to the term.

At the present day the line of the Caucasus is generally regarded as constituting the boundary between Europe and Asia; and though it is only in quite modern times that this line of demarcation has been established among geographers, it is so much the most convenient natural limit that it can hardly fail to continue to be received as such. The scientific conclusion has, moreover, been confirmed of late years by the official sanction of the Russian Government, which has adopted the watershed or central ridge of the Caucasus as the line of separation between its European and Asiatic provinces.

In its general character and conformation the range of the Caucasus may be considered as presenting more analogy with the Pyrenees than with the Alps. Its general uniformity of direction, its comparatively small width, and its well-defined limits towards both the south and the north, are strong features of resemblance to the former, rather than to the latter, of these well-known ranges. To these it may be added that, like the Pyrenees, the ridge of the Caucasus generally preserves for long distances together a high *average* elevation, and is not broken by those deep depressions, constituting natural passes across the chain, which are of such frequent occurrence in the Alps. Another point of resemblance between the Pyrenees and the Caucasus is to be found in the fact that in both cases two of the highest summits are in some measure detached from the main range; and just as the Mont Perdu and the Maladetta both lie south of the central ridge of the Pyrenees, and are consequently distinctly included in Spain, so Mount Elbruz and Kazbek—the two best known summits of the Caucasus—are situated decidedly north of that chain, and must therefore be geographically assigned to Europe, if the line of demarcation be drawn along the watershed of the range. Both these mountains are, in fact, of recent volcanic origin, and, geologically speaking, unconnected with the granite masses which constitute the central axis of the chain.

It had long been known that the highest summits of the Caucasus exceeded the most lofty of the Alps in positive elevation; but until very recently no accurate measurements of them existed, and little or nothing was known of any of the individual peaks except the two already mentioned. Of these Mount Elbruz owes its celebrity not merely to the fact that it is in reality much the most lofty summit of the whole range, attaining an elevation of not less than 18,526 feet, but to the circumstance that from its partly isolated position, it is conspicuously seen, both from the Black Sea and, on the other side, from the plains and steppes of Russia, where it is said to be distinctly visible from a distance of more than 200 miles.

Kazbek, on the contrary, attracted attention from an early period, on account of its proximity to the Pass of Dariel, in all ages the only frequented pass across the range of the Caucasus. Hence it was long supposed to be the second in height of the whole range, which is now found not to be the case, though it attains an elevation of 16,546 feet, or nearly 800 feet higher than Mont Blanc. But between these two giant peaks rise those of Koschtan Tau and Dych Tau (both of the names until very recently quite unknown), of which the former rises to nearly 17,100 feet, while the latter attains to 16,925 feet; these are therefore entitled to rank as the second and third summits of the Caucasus, while Kazbek can claim only the fourth place. It is, indeed, doubtful whether some of the other peaks on the great snowy range do not also exceed it in height.

The chain of the Caucasus corresponds in general position rather with the Apennines and the Pyrenees than with the Alps. But from its character as a great barrier extending across from sea to sea, it constitutes the limit between two climates which differ very widely from one another. The great steppes and plains of Russia on the north side of the chain are open to the cold winds of the north, and partake to a great extent of the severity of a Russian winter; while the valleys of Imeritia and Georgia on the southern side are sheltered by the vast mountain wall to the north of them, and thence enjoy a climate more in accordance with their southerly latitude.

Whatever be the contrasts presented by the two sides of the Alps, they are far more remarkable in the Caucasus. This is especially the case with the south-western valleys and slopes, where a great amount of rain is combined with a warm temperature. Hence all this part of the mountain country is characterized by a luxuriance of vegetation to which no parallel can be found in Europe. Magnificent forests clothe the mountain sides and extend down quite to the sea; while the rich valley, or rather basin, of the Rion, equals any part of Italy in fertility, and is capable of producing all kinds of crops that flourish in the Italian plains. But as the traveller passes inland towards Tiflis, he is struck by the change that takes place after crossing the comparatively trifling range of the Suram Mountains. Arid upland plains and parched hill-sides take the place of the rich verdure and luxuriant forests of Imeritia and Mingrelia. A similar change is observed in the higher regions of the mountains on crossing the Mamisson Pass, which separates the head waters of the Ardon from those of the Rion. While the valleys west of this—especially that of the upper Ingur, or Suanetia—are covered with the richest vegetation, those on the other side, the valleys of the Ardon and Terek, are almost wholly bare of trees, and present only mountain slopes covered with grass, where they are not sheets of bare rock.

The extensive pine forests, which constitute so important a feature in the scenery of the Alps, are almost wholly wanting in the Caucasus, or at least of only partial and occasional occurrence; and the description given by Mr. Freshfield of the scenery of the Terek above Kazbek, that it presents "treeless valleys, bold rocks, slopes of forbidding steepness (even to eyes accustomed to those of the Alps), and stone-built villages, scarcely distinguishable from the neighboring crags," will apply with little variation to all the valleys that run northward from the central chain. But if the general scenery of these valleys be dull and uninteresting, there is a marked exception in the deep gorges by which in most cases their waters make their escape through the northern lateral ridge. These defiles are pronounced by competent judges to be far superior in grandeur to anything

of the kind to be found in the Alps; that of Dariel has been already described, but the less known gorges of the Teherek and the Uruch are considered by recent travellers to be still more striking and marvellous. The wild animals found in the Caucasus are for the most part the same with those of the mountainous regions of Central Europe, while others point to a transition toward the zoological character of Asia. Thus while it has the bear, the wolf, the wild boar, the lynx, in common with the Alps, the jackal is not unfrequent on its southern side, the hyæna is also found, and leopards are occasionally killed. Tigers do not appear to be ever found in the Caucasus proper, though they are killed from time to time in the districts of Lenkpran on the Caspian, south of the mouth of the Kur. The ibex or bouquetin, as well as the chamois, abounds among the higher summits of the range, and with them is found the wild goat (*Capra Ægagrus*), and a species of moufflou or wild sheep. These vast forests of the western ranges still afford shelter to the aurochs or European bison, which now exists here alone in a truly wild state. It may be mentioned also that the southern slopes of the Caucasus are the native country of the pheasant, which derives its name, as well as its origin, from the River Phasis.

The mineral riches of the Caucasus are still in great measure unexplored. Iron and copper ores are known to exist in abundance; and coal is found in the valley of the Kuban, as well as in the upper valley of the Rion. But as it belongs to the Jurassic, and not to the true Carboniferous age, it is doubtful to what extent it may prove productive. The remarkable springs of naphtha near Baku, which have long been known as an object of interest and a sanctuary of the fire worshippers, are now turned to account for the manufacture of petroleum on a large scale.

Glaciers exist on a great scale in the Caucasus, but they are confined to a higher elevation than in the Alps. Notwithstanding the vast mass of glacier and perpetual snow which exists in the Central Caucasus, none of the lateral glaciers descend below 7000 feet on the southern side of the range; while the lowest point reached by any of those on the northern side is not below 5700 feet. But, as in the case of all the principal mountain chains of Europe, there is abundant evidence of the glaciers having once been much more extensive and having descended to a much lower level in the valleys than they at present occupy. At the same time it may be observed that there is a total absence in the Caucasus of those lakes which form so conspicuous a feature in the country on both sides of the Alps, and which are supposed by many geologists to be connected with glacial action.

Ethnology.—The ethnology of the Caucasus is still far from thoroughly known. From the earliest times it has been noted as the region where the greatest diversity of tribes and languages existed within the smallest space. Pliny tells us that no less than 130 different interpreters were required by the Greek traders at Dioscurias, the port where all the tribes of the neighboring mountains, as well as the more remote nations of the interior used to congregate, while others raised the number to 300. This is of course a great exaggeration, but it proves the fact that there existed then, as at the present day, an extraordinary number of races speaking different and in many cases wholly dissimilar dialects. The researches of modern scholars have thrown considerable light upon the subject, and enabled us at least to classify these different tribes in certain groups or families.

The Caucasus was known to the Greeks from a very early period, and the fable of Jason's search for the Golden Fleece is located here.

In modern times the chief interest in these regions has arisen from the long-continued struggle of these mountain tribes against Russia, and the energy with which the Circassians and Lesghians especially maintained the contest for independence against all the power of that mighty empire. From the time of the annexation of Georgia, at the commencement of the present century, it became a great object with the Russians to obtain possession of the intermediate mountain country; but it was not till the treaty of Adrianople in 1829, by which the Turks ceded to the Russian Empire their nominal sovereignty over the Caucasian tribes, that their efforts assumed a systematic form. From that period till the year 1859, the contest was maintained almost without interruption, and with many alternations of success. The Russians had to encounter immense difficulties, to traverse dangerous passes, to burn down forests, and to sacrifice immense numbers of lives, in order to gain small portions of territory. The war was for a long time chiefly maintained by the Circassians under their native chiefs; and no sooner did their exertions relax in consequence of their exhaustion caused by a long-continued contest, than a new enemy to Russia arose on the shores of the Caspian. Schamyl, the most devoted follower of the heroic Kasi Mullah, placed himself, on the death of that chief, at the head of the Lesghians. At once the prophet and the warrior of his race, by his enthusiasm and bravery he soon gained the confidence of the tribes, and prevailed upon them to follow a united and determined plan of action under his authority. His influence was daily increased, not only by the victories which he gained, but by the successful manner in which he frequently delivered himself and his followers from the most imminent dangers. His own escape from the rocky fortress of Achulko, where he was completely invested by the forces of General Grabbe, appeared both to his own countrymen and the enemy almost miraculous. The great exertions which were made by the Russians in the following years to reduce the tribes yet unsubdued, and those which had risen against their authority, were completely defeated by his indefatigable activity and bravery. In the year 1842, when the mountain tribes were filled with the greatest alarm in consequence of the advance of General Grabbe, that formidable enemy was completely defeated by Schamyl in the woods of Itchkeri. The Circassians, after again renewing their attacks upon the Russians in the neighborhood of the Black Sea, were ultimately driven back to their fastnesses; but Schamyl still continued to maintain his position on the Caspian, and inflicted severe losses upon the armies of the enemy. The Russians were evidently at a loss how to proceed against a chief who had baffled all their schemes, who had been a prisoner in their hands, whose rocky home had been frequently in their possession, who had incurred the most imminent dangers and been driven to the greatest emergencies, and who was still opposing them with unconquerable resolution, watching the progress of troops, cutting off their supplies, and harassing them by constant attacks. Various Russian generals were sent in succession to the Caucasus, new plans of action, defensive and offensive, were tried, but without effecting any permanent conquest.

The Crimean War (1854-1856) produced a temporary suspension of the efforts of the Russians in the Caucasus; but after its termination hostilities were resumed with increased vigor, both on the side of Circassia and in Daghestan. In the western districts, indeed, the contest never assumed any important character, and was carried on by a series of petty expeditions against the Circassian and Abkhasian tribes, who never acted in concert, and were compelled to submission one after the other. But

it was not till the year 1864 that the last of these wild tribes was finally subdued, and the complete subjugation of the Circassians was secured by the emigration of the whole people. The contest in Daghestan, though it had assumed for a time more formidable dimensions, had been already brought to a close. All the efforts of Schamyl could not prevent the Russians from gaining ground. Step by step they advanced steadily, though slowly, into the interior of the mountain country, and at last in the winter of 1858-59 made themselves masters of Weden, Schamyl's principal stronghold, which was taken by storm, and he himself was obliged to flee. This event was followed by the submission of many tribes, and, though Schamyl threw himself into the apparently impregnable mountain fastness of Mount Gunib, even this was surprised by the Russian general Prince Bariatinski, and Schamyl himself made prisoner (Sept. 6, 1859). From this time the war in the Caucasus was virtually at an end; the mountain tribes submitted one after the other, and notwithstanding some occasional petty outbreaks, appear to have passed quietly into the condition of Russian subjects.

CAUCUS, a term applied to a meeting of citizens, the object of which is to secure concert of action at an approaching election, or to map out a policy to be pursued by the party representatives.

CAUDETE, a town of Spain, in the province of Albacete, about eighty miles north of Cartagena. It was formerly fortified, and contains a town-house, a prison, a school of primary instruction, a Carmelite convent, and several other religious institutions. The inhabitants are engaged almost exclusively in agriculture and the manufacture of coarse fabrics for home consumption. Population, 6,500.

CAUDINE FORKS (*Furculæ Caudinæ*), the name of an Italian valley, famous in Roman history on account of the disaster which there befell the Roman army during the second Samnite war, in 321 B.C.

CAULAINCOURT, ARMAND AUGUSTIN LOUIS DE, Duke of Vicenza, was born December 9, 1772. He entered the army at the age of fifteen, rapidly attained promotion, and, as colonel of a regiment of carbineers, distinguished himself in the campaign of 1800. He was made general of division in 1805, and created Duke of Vicenza. In 1807 he was appointed ambassador at St. Petersburg and in 1811 received an appointment in the army of Spain. In November of 1813, he was made Minister for Foreign Affairs, and attended the congress at Chatillon, January, 1814. On the second restoration, he retired to private life. He died February 19, 1827.

CAULIFLOWER, a variety of the common kale or cabbage, affording one of the most esteemed delicacies of the table. It was cultivated as a culinary vegetable by the Greeks and Romans. Its culture was, however, little attended to in England till the end of the seventeenth century. The cauliflower is entirely the product of cultivation. The leaves are not in this, as in other varieties of the same species generally, the part used, nor are they so delicate and fit for use as those of most of the others, but the flower-buds and their stalks, or properly speaking, the inflorescence of the plant deformed by cultivation, and forming a head or compact mass generally of a white color.

CAULKING is the operation of driving oakum or untwisted rope into the seams of a ship, to render them water-tight. The quantity thus driven in depends on the thickness of the planking; it varies from one to thirteen double threads of oakum, with one or two single threads of spun-yarn. The fibers are driven in until they form a densely hard mass, which not only keeps out water, but strengthens the planking. The seam is finally coated with hot pitch or resin.

CAVA, or LA CAVA, a town of Italy in the province of Principato Citeriore, 28 miles by rail south-east of Naples, with a communal population of 19,500.

CAVAIGNAC, LOUIS EUGÈNE (1802–1857), dictator at Paris during the insurrection of June 1848, was born there in 1802. His father was a member of the National Convention, and the family was marked by Republican proclivities. After going through the usual course of study for the military profession, he entered the army in 1824, and served in the Morea in 1828. When the revolution of 1830 broke out, he was stationed at Arras, and was the first officer of his regiment to declare for the new order of things. In 1831 he incurred the displeasure of the Government of Louis Philippe by joining in a protest against its reactionary tendencies; but in 1832 he was recalled to the service, and sent to Algeria. This continued to be the main sphere of his activity for sixteen years, till the revolution of 1848; and he took an active part, though in a subordinate capacity, in the different sieges and campaigns by which Algeria was gradually reduced under French rule. After passing through almost all the successive grades in the army, he was, in 1844, raised to the rank of general of brigade, as a reward for his skill and courage. When the revolution of February (1848) took place, the Provisional Government appointed him governor-general of Algeria; and they shortly after offered him the post of minister at war, which he declined. On his election to the National Assembly, however, Cavaignac returned to Paris. When he arrived on the 17th May, he found the capital in an extremely critical state. The socialists of Paris, incited and organized by skilful leaders, were in a state of bitter hostility to the National Assembly, and a formidable insurrection was gradually maturing. The National Assembly had proved a bitter disappointment to them; for the peasant proprietors, terrified by the vast increase of taxation, and the general uncertainty of revolution, had returned a decidedly conservative majority. Several collisions had already taken place.

The crisis was at last brought about by the threatened abolition of the national workshops, which the reasonable majority of the Assembly was especially anxious for, as the finances were being ruined by the maintenance in utter idleness of 120,000 men. By the 22d of June a formidable insurrection had been organized, and it remained only for the National Assembly to assert its authority by force of arms. Cavaignac, first as minister at war, and then as dictator, was called to the task of suppressing the revolt. It was no light task, as the national guard was doubtful, regular troops were not at hand in sufficient numbers, and the insurgents had abundant time to prepare themselves. Various estimated at from 30,000 to 60,000 men, well armed and well organized, they occupied the north-eastern part of the city, their front line stretching from the Pantheon on the south of the Seine by the Pont St. Michel to the Portes St. Martin and St. Denis. Resting on the Faubourg St. Antoine as central point, and threatening the Hotel de Ville, they had entrenched themselves at every step behind formidable barricades, and were ready to avail themselves of every advantage that ferocity and despair could suggest to them. Cavaignac, knowing the work he had before him, remained inactive, notwithstanding the urgent representations of the civil members of Government, till a sufficient regular force had been collected. At last, by a strong combined movement on the two flanks and against the centre of the insurgent forces, he attempted to drive them from their barricades, — with doubtful success for some time, as every inch of ground was disputed, and the Government troops were frequently repulsed, till, fresh regiments arriving, he

forced his way to the Place de la Bastille, and crushed the insurrection in its headquarters. The contest, which raged from the 23d to the morning of the 26th of June, was, without doubt, the bloodiest and most resolute the streets of Paris have ever seen. It is calculated that more Frenchmen fell in it than in the bloodiest battles of the first empire.

Cavaignac was severely censured by some for having, by his delay, allowed the insurrection to gather head; but he was declared by an immense majority to have deserved well of his country, and continued to be president of the Executive Committee till the election of a regular president of the republic. It was expected that the suffrages of France would raise Cavaignac to that position. But the mass of the people, and especially the rural population, sick of revolution, and weary even of the moderate republicanism of Cavaignac, were anxious for a stable government. Against the five and a half million votes recorded for Louis Napoleon, Cavaignac received only a million and a half. Not without chagrin at his defeat, he withdrew into the ranks of the opposition. At the *coup d'état* of the 2d December 1851, he was arrested along with the other members of the opposition; but after a short imprisonment at Ham, he was released, and, with his newly-married wife, lived in retirement till his death in 1857. Cavaignac was no statesman, but was a loyal, skilful, and courageous soldier, a zealous republican, and in every way an honorable man.

CAVAILLON, a town of France and important railway junction in the department of Vaucluse, on the right bank of the Durance, about 13 miles south-east of Avignon. Population (1889), 5,000.

CAVALCANTI, GUIDO, an Italian poet and philosopher of the 13th century, who died in 1300. He was the son of a philosopher whom Dante, in the *Inferno*, condemns to torment among the Epicureans and Atheists; but he himself was a friend of the great poet.

CAVALIER, JEAN (c. 1680–1740), the famous chief of the Camisards, was born at Ribaute, near Anduse, in Lower Languedoc. He was the son of a peasant, and in boyhood was employed first in keeping sheep, and afterwards as a baker's apprentice. A pious mother trained him in the Reformed faith. The persecution of Protestants, which began after the revocation of the Edict of Nantes, and which was carried on with pitiless cruelty in the Cevennes, drove him from his native land in 1701, and he took refuge at Geneva. By the *dragonnades* of Louis XIV. the Protestants of the Cevennes were at last driven to revolt; and Cavalier, inspired with the hope of being their deliverer, a hope which was raised to the pitch of enthusiasm, it is said, by certain prophecies, returned to his own country in 1702. The insurrection broke out in July of that year, and Cavalier was one of the chosen leaders. Roland was named generalissimo, but Cavalier soon rose to share the chief command with him. Untrained in arms, he displayed not only a fiery courage, but extraordinary military skill. This must have been owing to some extent to the eager attention which he had paid, while keeping his sheep, to the manœuvres of the troops which were stationed in his native district. Although the *enfants de Dieu*, as the insurgents were called, numbered at the most only 3000 men in arms, they coped successfully again and again with the much more numerous forces of the king, and were never entirely conquered. After several affairs Cavalier changed the theatre of war to the Vivarais; and on the 10th of February 1703 he defeated the royalist troops on the Ardèche. A few days later he was completely defeated on the same ground and was supposed to have fallen. But he reappeared, was again

defeated at Tour-de-Bellot (April 30), and again recovered himself, recruits flocking to him to fill up the places of the slain. By a long series of successes he raised his reputation to the highest pitch, and gained the full confidence of the people. It was in vain that more and more rigorous measures were adopted against the Camisards; in vain that their mountain district was ravaged, sacked, and burned by the Catholics. Cavalier boldly carried the war into the plain, made terrible reprisals, and threatened even Nîmes itself. On April 16, 1704, he encountered Marshal Montrevel himself at the bridge of Nages, with 1000 men against 5000; and though defeated after a desperate conflict, he made a successful retreat with two-thirds of his men. Marshal Villars was next sent against him, and instead of fighting proposed negotiation. Roland resolutely turned a deaf ear to him; but Cavalier agreed to treat. A conference was held at Nîmes, hostages being given to Cavalier; and he appeared with an armed and mounted escort, which was drawn up facing the guard of the Marshal. The terms proposed were deferred to the decision of the king, Cavalier in the meanwhile retiring to Calvisson. In this place for some days the Camisards held their meetings openly, and thousands eagerly flocked to them.

The result of the negotiation was that Cavalier received for himself a commission with a pension of 1200 livres, and for his brother a captain's commission. He was authorized to form a regiment, of Camisards to be sent to Spain; and liberty was restored to his father and other Protestant prisoners. The treaty, which did not include any provision for general liberty of conscience, excited great indignation among the companions of Cavalier. They called him traitor and coward, and deserted him. Disheartened, and with little confidence in the promises of the court, Cavalier afterwards visited Paris for the purpose of an interview with Louis XIV. He was presented privately to the king at Versailles, but was ill received. His disappointment and the reports which were current of intended attempts on his life or liberty induced him to leave France. He went to Switzerland, and afterwards to Holland; and there he married a daughter of Madame Dunoyer, the latter a lady of Nîmes, who had once been sought in marriage by Voltaire. He then passed into England for the purpose of recruiting his regiment of Camisards. He had an interview with Queen Anne, of which conflicting accounts are given. But so highly was his military genius valued that he was sent with his regiment to take part in the famous expedition to Spain, under the earl of Peterborough and Sir Cloudesley Shovel (May 1705). At the battle of Almanza his Camisards encountered a French regiment which they had met in the Cevennes, and, without firing, the foes rushed to a hand to hand fight and made a fearful slaughter. Cavalier was severely wounded, and was saved from death by an English officer. On his return to England a small pension was given him, and after long waiting he was made a major-general and named governor of Jersey. This post was afterwards exchanged for the governorship of the Isle of Wight. Cavalier died at Chelsea, in the first half of May 1740, and there his remains were interred.

CAVALLINI, PIETRO (c. 1259-1344), born in Rome towards 1259, was an artist of the earliest epoch of the modern Roman School, and was taught painting and mosaic by Giotto while employed at Rome; and it is believed that he assisted his master in the mosaic of the Navicella, or ship of St. Peter, in the porch of the church of that saint. Lanzi describes him as an adept in both arts, and mentions with approbation his grand fresco of a Crucifixion at Assisi, still in tolerable preservation; he was, moreover, versed in architecture and in sculpture.

CAVALLO, TIBERIUS (1749-1809), an electrician and natural philosopher, son of a physician established at Naples, was born in that city, March 30, 1749.

CAVALRY. From the earliest dates, at which there is any record of armed men being systematically trained and organized, cavalry has always formed an integral part of every army, although the relative size and importance of the arm has varied, according to the nature of the country and the peculiarity of its inhabitants. Egypt probably affords the earliest historical records of any distinct attempt at military organization. In that country cavalry and horsemanship were held in high repute, according to the prophet Isaiah. Diodorus of Sicily tells us that Osymandias led 20,000 cavalry against the rebels in Bactriana, and that twenty-five generations elapsed between Osymandias and Sesostrius, who seems to have been the chief founder of Egyptian greatness, and to have lived at a period indistinctly laid down in history, but certainly long prior to the Trojan war. In early times chariots appear to have been associated with the horsemen of an army, although perfectly distinct from them. Frequent references are made in the Bible to "chariots and horsemen;" and Josephus states that the army of Israelites that escaped from Egypt numbered 50,000 horsemen and 600 chariots of war.

The first authentic account that we have of cavalry being regularly organized is given by Xenophon, who states that in the first Messenian war, 743 B.C., Lycurgus formed his cavalry in divisions. Some hundred years later, in 371 B.C., Epaminondas raised a corps of 5000 cavalry, and from this date it may be said the arm was much cultivated throughout Greece, until Philip and Alexander of Macedon raised it to a great pitch of excellence. Both these monarchs were indebted for several of their greatest successes to the prowess of their cavalry; and the exploits of Alexander's 7000 horsemen at the battle of Arbela, 331 B.C., in which he signally defeated Darius, may well serve as an example for future generations. After the death of Alexander the Great cavalry appears to have fallen into comparative disuse until the days of Hannibal and the Carthaginians. Dire experience, more especially the defeats the Ticinus and the Trebia, taught the Romans the value of cavalry; and in the latter days of the republic it became the most popular and highly favored service of the Roman armies. According to Vegetius, the Roman cavalry was organized into ten troops or squadrons, forming a regiment of 726 horses, either intended to act independently or, more usually, attached to some special legion. As the Roman empire increased and brought many tributaries under its flag, the cavalry began to be drawn from those countries whose inhabitants were specially devoted to equestrian pursuits. The Gauls for many years furnished the principal part of the cavalry both in the Carthaginian and in the Roman armies and appear to have rivalled the Numidians in efficiency. Strange to say, saddles were never used until the time of Constantine, and stirrups were introduced by the Franks about the middle of the 5th century.

In the Middle Ages the unwillingness to intrust any military power to the serfs rendered the upper classes the only soldiers, and as these did not deign to fight on foot cavalry became the basis of European armies. The knights and esquires were the nucleus, mounted attendant bowmen and pikemen being the secondary portion of the fighting power.

The invention of gunpowder and the decline of the feudal system wrought a change in military tactics, and from the organization of a standing army by Charles II. of France, in 1445, cavalry as it now exists may be said to date. As in early days; each country produced a

species of cavalry in accordance with the characteristics of its inhabitants and the nature of its institutions. From Hungary came the Hussars, whose name is derived from the Hungarian word "Husz," twenty, and "ar," pay. Marshal Luxembourg appears to have been the first person who disciplined and organized these hussars, and in 1692 they were attached to his army as light troops and reconnoiters. Carabineers were of a somewhat earlier date, and seem to have come originally from Basque and Germany. The word carbine has been traced to an Arab word "karab," but this derivation is somewhat doubtful. Originally it was the custom of carabineers or horsemen armed with firearms to mount infantry behind them, and in 1543 King Louis of Nassau made use of this hybrid force in his operations against Bergen.

A few years later, in 1554, Marshal De Brissac formed a corps of mounted infantry and called them Dragoons, thus justifying Dr. Johnson's definition of the word as "a man who serves indifferently either on foot or on horseback." The actual origin of the term dragoon has been ascribed to the dragon's head which, as a rule, adorned the muzzle of the firearm with which these horsemen were armed, — although this derivation again cannot be regarded as very certain. As firearms became more generally used, so the tactics and organization of cavalry underwent modifications. In the time of Francis I. the gens-d'armes of France were reckoned the best cavalry in Europe, and were formed in single rank. Somewhat later the Spaniards, and afterwards the Germans, carried off the palm; they went to the other extreme as regards formation, being formed in six and eight ranks, and were composed of arquebusiers and lancers. At this time military leaders failed to appreciate the true mission of cavalry, and assigned too great importance to the effect of firearms, too little to that of "cold steel." Maurice of Nassau was the first to train cavalry with a view to their mobility, and teach them to act by separate bodies, and in distinct lines. Now for the first time cavalry was organized by regiments, each regiment being composed of four squadrons, formed in five ranks, and numbering about 1000 horses.

During the Thirty Years' War, from 1618 to 1648, the lance as a cavalry weapon gradually disappeared, partly on account of the amount of training which is necessary to insure its efficient use, and partly on account of the exaggerated value attached to firearms as cavalry weapons. After Maurice of Nassau, Gustavus Adolphus appears as the next great cavalry leader, and was so successful in the employment of his cuirassiers and dragoons — into which two divisions his horsemen were classed — that all other European nations began to imitate him, and adopted his formation in three ranks. After the death of Gustavus Adolphus, until the wars with the Turks, the French appear to have been the most instructed and efficient in the employment of cavalry. The wars of Louis XIII. and Louis XIV. soon developed military art, and such great leaders as Turenne, Condé, Montecuculi, and Marlborough made their name. At this period defensive armor for cavalry was abolished, and lances were unknown except among irregular horsemen, who came from the plains of Poland and Russia. Excellent, however, as the French cavalry at this period undoubtedly was, it could not vie with that of the Turks, either as regards its own efficiency or the results that it achieved. So formidable and so much feared were the Turkish horsemen that the Russian infantry, when opposed to them, invariably carried *chevaux-de-frise* in light carts for their protection. It has been very justly remarked that no other cavalry has ever obtained such an ascendancy as this over infantry.

Hitherto but little attention had been paid to the employment of cavalry off the field of battle for purposes of reconnoitring, although it had long exercised an important influence in action. Marshal Saxe, however, may be said to have introduced a new and more enlightened era in the history of the arm, he not only was the first to recognize the true mission and use of light cavalry, but also the necessity for celerity in movement and manœuvre on all occasions. Although he cannot be said to have introduced horse artillery, which did not appear on the field of battle till 1762, still, by his timely use of guns in conjunction with cavalry at the battle of Fontenoy, he first showed how the two arms might be combined.

It cannot, however, be said that cavalry has ever before or since played the important part in war that it did in the days of Frederick the Great. This monarch recognized that the sword, and not the firearm, was the proper weapon for a mounted soldier. He discontinued firing in line, and the pitch of excellence at which his horsemen arrived under the leadership of Seidlitz, and the results they obtained, have never been equalled by the cavalry of any other nation. The battles of Zorn-dorf, Rosbach, Striegau, Kesselsdorf, and Leuthen still remain the most signal examples of what may be attained if to long previous training and preparation are joined brilliancy and rapidity of execution in the field. It required, however, long experience and the occasional disasters which befell him in the first and second Silesian wars before Frederick the Great appreciated the true principles of mounted warfare or put them into execution.

The next period in the history of cavalry may be said to date from the rise of Napoleon I. until the battle of Waterloo. The Republican armies of France were but ill provided with mounted troops, and the disaster of Wurzburg in 1796 nearly annihilated the comparatively few squadrons that France then possessed. The genius of Napoleon evinced itself as remarkably in the organization as in the leading of his armies, and his first care was to create a force of cavalry such as would enable him to reap the fruits of his victories. To his cavalry he was mainly indebted for some of his most signal triumphs, notably Marengo and Austerlitz, and to the manner in which he employed his mounted scouts and reconnoiters he owed the facility with which he so often out-manœuvred and anticipated his enemies. The Russian campaign of 1812 annihilated the French cavalry, and there was not time to reorganize it before it was necessary to take the field. Hence some of Napoleon's most decided successes in 1813 proved fruitless; as he himself remarked, had he possessed cavalry at the battles of Lützen and Bautzen the war would then have been brought to an end. It would here appear worthy of remark that defensive armor for cavalry, which had fallen into disuse, was re-introduced by Napoleon. He increased the French cuirassiers from one regiment to twelve, and they performed excellent service ever afterwards. Similarly in Napoleon's time the lance began to be again used in Europe; in 1807 it was found that a Polish regiment of lancers was so useful that twelve lancer regiments were afterwards formed, and a certain proportion of this arm has ever since been maintained in all European armies. Any remarks, however, on cavalry in the time of Napoleon would be incomplete were no reference made to the Cossacks, who so much contributed to render the retreats from Russia and after Leipsic peculiarly disastrous to the French. These irregular horsemen, mounted on small horses and armed with lances, hung on the flanks and rear of the retreating enemy, and, although seldom standing to meet an attack, appeared to be

ubiquitous, alike affording a screen for their own army and obtaining the fullest information regarding the movements of that opposed to them.

In 1866 there occurred the first great European war since Waterloo in which cavalry could be turned to full account. From long disuse and want of practice neither Austrians nor Prussians made sufficient use of the large force of horsemen which was at their disposal, and neither on the field of battle nor off it did they achieve any great distinction, although, undoubtedly, of the two the Austrians carried off the palm.

Four years later the experience gained by the Prussians in 1866 on the plains of Bohemia was in the fullest degree utilized, whereas their opponents the French only showed how splendid material may be sacrificed and how brilliant courage may be thrown away. Incessant practice during the four preceding years of peace had rendered the Prussian cavalry most proficient in all the duties of reconnoitering and outposts. The information they obtained and the manner in which they concealed the movements of the army in their rear mainly contributed to enable the leaders of the German army to carry out successfully their strategic plans, and their prowess on the field of battle when turned to account as at Mars-la-Tour was exerted to the best effect. The French cavalry, on the other hand, were remarkable more for bravery than efficiency. In place of being scattered in small parties some days in advance of an army they marched in masses frequently in its rear. Off the field of battle they were of no service, and on it they were needlessly sacrificed through the incapacity of their leaders. History has few examples of bravery more devoted than that of the French cavalry at the battles of Wörth and Sedan, and none in which bravery was more entirely thrown away. After the fall of the empire it may be said that the French cavalry ceased to exist, and as it is an arm that cannot be improvised the republic had no time to replace what had been destroyed.

On the whole it cannot be said that the last two European wars have added much to the art of handling cavalry. The practice of spreading light troops two days' march in advance of an army was not new, although of late years it had fallen into disuse, and as regards the employment of mounted troops on the battlefield, it is still an unsettled question whether the recent improvements in firearms have or have not rendered it impossible for them ever to turn the tide of victory.

For the organization, equipment, and strength of the cavalry of the various armies of the present day see ARMY.

CAVAN, an inland county in the province of Ulster, in Ireland, is bounded N. by Fermanagh and Monaghan, E. by Monaghan and Meath, S. by Meath, Westmeath, and Longford, and W. by Longford and Leitrim. It has an area of 746 square miles, or 477,394 acres.

The number of goats raised here greatly exceeds that in the other counties, with the exception of Kerry and Cork.

Cavan is not a manufacturing county. The bleaching of linen and the distillation of whisky are both carried on to a small extent; but the people are chiefly employed in agricultural pursuits and in the sale of home produce. The soil in those districts not well adapted for tillage is peculiarly favorable for trees. The woods were formerly very considerable, and the timber found in the bogs is of large dimensions; but plantations are now chiefly found in demesnes, where they are extensive.

The population is less mixed in race than most parts of Ulster, being generally of Celtic extraction. The dwellings of the peasantry are poor in accommodation.

There are in the county only four towns with upwards of 1000 inhabitants, viz., Cavan, Cootehill, Belturbet, and Bailieborough. The population in 1851 amounted to 174,064, and in 1871 to 140,735 (with an excess of 223 males), showing a decrease in twenty years of 33,329 persons, being an average of 1666 per annum, or 19 per cent., on the population of 1851. This is considerably above the average decrease of Ulster. At the census of 1871 there were 113,174 Catholics, 21,223 Episcopalians, 15,004 Presbyterians, and 1334 of other denominations, showing that 80 per cent. of the inhabitants professed the Catholic faith.

In 1881 the population had still further decreased to 129,476, showing a loss of 11,259 since the year 1871, and since that time there has been an additional loss by emigration.

CAVAN, the capital of the above county, and, previous to the Union, a parliamentary borough, but now placed under the Towns Improvement Act, is situated near the centre of the county. It is 68 miles N.W. from Dublin (85½ by rail), on one of the tributary streams of the Annalee River, in a large valley surrounded on every side by elevated ground, with picturesque environs, adorned by the mansions and demesnes of Lord Farnham and the bishop of Kilmore.

CAVANILLES, ANTONIO JOSE, a Spanish ecclesiastic who devoted himself to botany, was born at Valencia in 1745, and died in 1804.

CAVE (Latin *cavea*), a hollow extending beneath the surface of the earth. Caves have excited the awe and wonder of mankind in all ages, and have been the centres round which have clustered many legends and superstitions. They were the abode of the sibyls and the nymphs in Roman mythology, and in Greece they were the temples of Pan, Bacchus, Pluto, and the Moon, as well as the places where the oracles were delivered at Delphi, Corinth, and Mount Cithæron. In Persia they were connected with the obscure worship of Mithras. Their names frequently are survivals of the superstitious ideas of antiquity, as for example, the Fairy, Dragon's, or Devil's Caves of France and Germany. Long after the Fairies and Little Men had forsaken the forests and glens of Germany, they dwelt in their palaces deep in the Hartz Mountains, in the Dwarfholes, &c., whence they came from time to time into the upper air.

The Seven Sleepers of Ephesus slept their long sleep in a cave. The hills of Granada are still believed by the Moorish children to contain the great Boabdil, and his sleeping host, who will awake, when an adventurous mortal invades their repose, to restore the glory of the Moors in Spain.

Caves have been used in all ages by mankind for habitation, refuge, and burial. In the Old Testament we read that when Lot went up out of Zoar he dwelt in a cave with his two daughters. The five kings of the Canaanites took refuge from Joshua, and David from Saul, in the caves of Palestine, just as the Aquitani fled from Cæsar to those of Auvergne, and the Arabs of Algeria to those of Dahra, where they were suffocated by Marshal Peïssier in 1845. In Central Africa Dr. Livingstone tells us that there are vast caves in which whole tribes find security with their cattle and household stuff.

The cave of Machpelah may be quoted as an example of their use as sepulchres, and the rock-hewn tombs of Palestine and of Egypt, and the Catacombs of Rome probably owe their existence to the ancient practice of burial in natural hollows in the rock. We might therefore expect to find in them most important evidence as to the ancient history of mankind, which would reach long beyond written record; and since they have always been used by wild beasts as lairs we might rea-

sonably believe also that their exploration would throw light upon the animals which have in many cases disappeared from the countries which they formerly inhabited. The labors of Buckland, Pengelly, Falconer, Lartet, and Christy, and Dawkins, carried on during the last fifty years in the caves, have added an entirely new chapter to the history of man in Europe, as well as established the changes that have taken place in the European fauna.

The most obvious agent in hollowing out caves is the sea. The set of the currents, the force of the breakers, the grinding of the shingle inevitably discover the weak places in the cliff, and leave caves as one of the results of their work, modified in each case by the local conditions of the rock. Those formed in this manner are easily recognized from their floors being rarely much out of the horizontal; their entrances are all in the same plane, or in a succession of horizontal and parallel planes, if the land has been elevated at successive times. From their inaccessible position they have been rarely occupied by man. Among them Fingal's Cave, on the island of Staffa, off the south-west coast of Scotland, hollowed out of columnar basalt, is perhaps the most remarkable in Europe. In volcanic regions also there are caves formed by the passage of lava to the surface of the ground, or by the expansion of steam and gases in the lava while it was in a molten state. They have been observed in the regions round Vesuvius and Etna, in Iceland and Teneriffe. We may take as an example the Grotto del Cane (dog cave) near Pozzuoli, a few miles to the south-west of Naples, remarkable for the flow of carbonic acid from crevices in the floor, which fills the lower part of the cave and suffocates any small animal, such as a dog, immersed long enough in it.

The most important class of caves, however, and that which immediately demands our notice, is that composed of those which have been cut out of calcareous rocks by the action of carbonic acid in the rain-water, combined with the mechanical friction of the sand and stones set in motion by the streams which have, at one time or another, flowed through them. They occur at various levels, and are to be met with wherever the strata are sufficiently compact to support a roof.

Caves formed by the action of carbonic acid, and the action of water are distinguished from others by the following characters. They open on the abrupt sides of valleys and ravines at various levels, and are arranged round the main axis of erosion, just as the branches are arranged round the trunk of a tree. In a great many cases the relation of the valley to the ravine, and of the ravine to the cave, is so intimate that it is impossible to deny that all three have been produced by the same causes. The caves themselves ramify in the same irregular fashion as the valleys, and are to be viewed merely as the capillaries in the general valley system through which the rain passes to join the main channels. Sometimes, as in the famous caves of Apelsberg, Kentucky, Wookey Hole in Somersetshire, the Peak in Derbyshire, and in many in the Jura, they are still the passages of subterranean streams; but very frequently the drainage has found an outlet at a lower level, and the ancient watercourses have been deserted.

The history of swallow-holes, caves, ravines, and valleys in calcareous strata may be summed up as follows. The calcareous rocks are invariably traversed by joints or lines of shrinkage, which are lines of weakness by which the direction of the drainage is determined; and they are composed to a large extent of carbonate of lime, which is readily exchanged into soluble bicarbonate by the addition of carbonic acid. The rain in its passage through the air takes up carbonic acid, and it is still further charged with it in percolating through the

surface soil in which there is decomposing vegetable matter. As the rain drops converge towards some one point, determined by some local accident on the surface, and always in a line of joint, the carbonic acid attacks the carbonate of lime with which it comes into contact, and thus a funnel is gradually formed ending in the vertical joint below. Both funnel and vertical joint below are being continually enlarged by this process. The chemical action goes on until the free carbonic acid is used up. The subterranean passages are enlarged in this manner, and what was originally an insignificant net-work of fissures is developed into a series of halls, sometimes as much as from 80 to 100 feet high. These results are considerably furthered by the mechanical friction of the pebbles and sand hurried along by the current, and by falls of rock from the roof produced by the removal of the underlying strata. In many cases the results of this action have produced a regular subterranean river system. The thick limestones of Kentucky, for example, are traversed by subterranean waters which collect in large rivers, and ultimately appear at the surface in full power.

The caves which have offered shelter to man and the wild animals are classified according to their contents. *1st*, Those containing the extinct animals, such as the mammoth, woolly rhinoceros, or Palæolithic man (see ARCHÆOLOGY), are termed Pleistocene. These are sometimes called Quaternary, under the mistaken idea that they belong to an age succeeding the Tertiary period. *2d*, Those which contain the remains of the domestic animals in association with the remains of man either in the Neolithic, Bronze, or Iron stages of civilization are termed Prehistoric. *3d*, The third group consists of those which can be brought into relation with the historic period, and are therefore termed Historic.

The search after *ebur fossile* or unicorn's horn, or in other words the fossil bones which ranked high in the materia medica of the 16th and 17th centuries, led to the discovery of the ossiferous caverns of the Hartz Mountains, and of Hungary and Franconia. The famous cave of Gailenreuth in the last of these districts was explored by Dr. Goldfuss in 1810. The bones of the hyæna, lion, wolf, fox, and stag, which it contained, were identified by Cuvier, and some of the skulls have been recently proved by Professor Busk to belong to the grizzly bear. They were associated with the bones of the reindeer, horse, and bison, as well as those of the great cave bear. These discoveries were of very great interest, because they established the fact that the above animals had lived in Germany in ancient times. The first bone cave systematically explored in England was one at Orreston near Plymouth in the year 1816, which proved that an extinct species of rhinoceros (*R. Megalhinus*) lived in that district. Four years later the famous hyæna den at Kirkdale in Yorkshire was explored by Dr. Buckland. He brought forward proof that it had been inhabited by hyænas, and that the broken and gnawed bones of the mammoth, rhinoceros, stag, bison, and horse belonged to animals which had been dragged in for food. He pointed out that all these animals had lived in Yorkshire in ancient times, and that it was impossible for the carcasses of the rhinoceros, hyæna, and mammoth to have been floated from tropical regions into the places where he found their bones. He subsequently investigated bone caves in Derbyshire, South Wales, and Somerset, as well as in Germany, and published his *Reliquiæ Diluvianæ* in 1822, a work which laid the foundations of the new science of cave-hunting in England. The well-known cave of Kent's Hole, near Torquay, furnished the Rev. J. McEnery, between the years 1825 and 1841, with the first flint implements discovered in intimate association with the bones of ex-

tinct animals. He recognized the fact that they proved the existence of man in Devonshire while those animals were alive, but the idea was too novel to be accepted by his contemporaries. His discoveries have since been verified by the subsequent investigations carried on by Mr. Godwin Austen, and ultimately by the committee of the British Association, which has been at work for several years under the guidance of Mr. Pengelly. There are four distinct strata in the cave. *1st*, The surface is composed of dark earth, and contains mediæval remains, Roman pottery, and articles which prove that it was in use during the Iron, Bronze, and Neolithic ages. *2d*, Below this is a stalagmite floor, varying in thickness from 1 to 3 feet, and covering (*3d*) the red earth, which contained bones of the hyæna, lion, mammoth, rhinoceros, and other animals, in association with flint implements and an engraved antler, which proved man to have been an inhabitant of the cavern during the time of its deposition. *4th*, Filling the bottom of the cave is a hard breccia, with the remains of bears and flint implements, in the main ruder than those found above; in some places it was no less than 12 feet thick. The most remarkable animal found in Kent's Hole is the sabretoothed carnivore, *Machairodus latidens* of Owen. While the value of Mr. McEnery's discoveries was in dispute the exploration of the cave of Brixham near Torquay in 1858 proved that man was coeval with the extinct mamalia, and in the following year additional proof was offered by the implements that were found in Wookey Hole. Similar remains have been met with in the caves of Wales, and in England as far north as Derbyshire (Creswell), proving that over the whole of southern and middle England men, in precisely the same stage of rude civilization, hunted the mammoth and rhinoceros and other extinct animals.

The caves and rock shelters of Perigord, explored by the late M. Lartet and our countryman Mr. Christy, in 1863-4, have not only afforded accumulative proof of the co-existence of man with the extinct mammalia, but have given us a clue as to the race that so existed. They penetrate the sides of the valleys of the Dordogne and Vézère, and offer as vivid a picture of the life of the period as that revealed of Italian manners in the 1st century by the buried cities of Herculaneum and Pompeii. The old floors of human occupation consist of broken bones of animals killed in the chase, mingled with rude implements and weapons of bone and unpolished stone, and with charcoal and burnt stones, which indicate the position of the hearths. Flakes without number, awls, lance-heads, hammers, and saws, made of finest *pêle-mêle* with bone needles, sculptured reindeer, bison, horse, ibex, Saiga antelope, and musk sheep. These singular accumulations of *débris* mark the places where the ancient hunters lived, and are merely the refuse cast aside. The reindeer formed by far the greater portion of the food, and must have lived in enormous herds at that time in the centre of France. Besides these animals the cave bear and lion have been met with in one, and the mammoth in five localities, and their remains bear marks of cutting or scraping which showed they fell a prey to the hunters. The most remarkable remains left behind in these refuse heaps are the sculptured reindeer antlers and figures engraved on fragments of schist and on ivory. A well-defined outline of an ox stands out boldly from one piece of antler; a second represents a reindeer kneeling down in an easy attitude with his head thrown up in the air so that the antlers rest on the shoulders, and the back forms an even surface for a handle, which is too small to be grasped by an ordinary European hand; in a third a man stands close to a horse's head, and on the other side of the same cylinder are two heads of bisons

drawn with sufficient clearness to ensure recognition by any one who has seen that animal. On a fourth the natural curvature of one of the tines has been taken advantage of by the artist to engrave the head and the characteristic recurved horns of the ibex; and on a fifth horses are represented with large heads, upright dishevelled manes, and shaggy ungroomed tails. The most striking figure is that of the mammoth engraved on a fragment of its own tusk; the peculiar spiral curvature of the tusk and the long mane, which are now not to be found in any living elephant, prove that the original was familiar to the eye of the artist. These drawings probably employed the idle hours of the hunter, and hand down to us the scenes which he witnessed in the chase. They are full of artistic feeling, and are evidently drawn from life. The mammoth is engraved in its own ivory, and the reindeer and the stag on their respective antlers. The general idea which we are justified in forming of these ancient dwellers in Aquitaine is that they lived by hunting and fishing, and that they were clad with skins sewn together with sinews or strips of intestines. They possessed no domestic animals, nor were they acquainted with spinning or with the potter's art. We have no evidence that they buried their dead, —the interments, such as those of Aurignac, Les Eyzies, Mentone, as well as of Belgium and Germany, most probably belonging to a later age. Caves containing their implements occur throughout these regions as well as in Switzerland.

These traces of the most ancient men as yet discovered in Europe, may with a high degree of probability be referred to the Eskimos. The bone needles, and many of the harpoons, as well as flint spearheads, arrowheads, and scrapers, are of precisely the same form as those now in use amongst the Eskimos. The artistic designs from the caves of France, Belgium, and Switzerland, are identical in plan and workmanship with those of the Eskimos, with this difference only, that the hunting scenes familiar to the Palæolithic cave-dwellers were not the same as those familiar to the inhabitants of the shores of the Arctic Ocean. Each represented the animals which he knew, and the whale, walrus, and seal were unknown to the inland dwellers of Aquitaine, just as the mammoth, bison, and wild horse are unknown to the Eskimos. The reindeer, which they both knew, is represented in the same way by both. The practice of accumulating large quantities of the bones of animals round their dwelling-places, and the habit of splitting the bones for sake of the marrow, are the same in both. The hides were prepared with the same sort of instruments, and the needles with which they were sewn together are of the same pattern. In both there was the same disregard of sepulture. All these facts can hardly be mere coincidences caused by both peoples leading a savage life under different conditions. The conclusion, therefore, seems inevitable, that, so far as we have any evidence of the race to which the cave-dwellers belong, that evidence points only in the direction of the Eskimos. It is to a considerable extent confirmed by a consideration of the animals found in the caves. The reindeer and musk sheep afford food to the Eskimos now in the Arctic Circle, just as they afforded it to the Palæolithic hunters in Europe; and both these animals have been traced by their remains from the Pyrenees to the north-east, through Europe and Asia as far as the very regions in which they now live. The mammoth and bison also have been tracked by their remains in the frozen river gravels and morasses through Siberia as far as the American side of the Straits of Behring. Palæolithic man appeared in Europe with the arctic mammalia, lived in Europe with them, and in all human probability retreated to the north-east along with them.

The remains of man and the animals described in the preceding paragraphs have been introduced into the caves either by man or the wild beasts, or by streams of water, which may or may not now occupy their ancient courses; and the fact that the same species are to be met with in the caves of France, Switzerland and Britain implies that our island formed part of the Continent, and that there were no physical barriers to prevent their migration from the Alps as far to the north-west as Ireland.

The same conclusion may be gathered from the exploration of caves in the south of Europe, which has resulted in the discovery of African species, in Gibraltar, Sicily, and Malta. In the first of these the spotted hyæna, the serval, and Kaffre cat lie side by side with the horse, grizzly bear, and slender rhinoceros. To these African animals inhabiting the Iberian peninsula in the Pleistocene age, M. Lartet has added the African elephant and striped hyæna, found in a stratum of gravel near Madrid, along with flint implements. The hippopotamus, spotted hyæna, and African elephant occur in the caves of Sicily, and imply that in ancient times there was a continuity of land between that spot and Africa, just as the presence of the *Elephas antiquus* proves the non-existence of the Straits of Messina during a portion, to say the least, of the Pleistocene age. A small species of hippopotamus occurs in incredible abundance in the Sicilian caves. It has also been found in those of Malta along with an extinct pigmy elephant species. It has also been discovered in Candia and in the Peloponnese. For these animals to have found their way to these regions, a continuity of land is necessary. The view advanced by Dr. Falconer and Admiral Spratt, that Europe was formerly connected with Africa by a bridge of land extending southwards from Sicily, is fully borne out by these considerations. The present physical geography of the Mediterranean has been produced by a depression of land to the amount of about 400 fathoms, by which the Sicilo-African and Ibero-African barriers have been submerged, and Crete and Malta separated from the South-European continent. It is extremely probable that this submergence took place at the same time that the adjoining sea bottom was elevated to about the same amount to constitute that region known as the Sahara.

The Pleistocene caverns of the Euro-Asiatic continent contain the progenitors of the animals now to be found in some parts of the Old World, the extinct forms being closely allied to those now living in the same geographical provinces. Those of Brazil and of Pennsylvania present us with animals whose nearest analogues are to be found in North and South America, such as sloths, armadillos, and agoutis. Those, again, of Australia present us with marsupials only, allied to, or identical with, those of that singular continent.

The extinct forms in each case are mainly those of the larger animals, which, from their large size, and the fact of their only bearing one at a birth, would be specially liable to be beaten in the battle for life by their smaller and more fertile contemporaries, and less likely to survive those changes in their environment which have undoubtedly taken place in the long lapse of ages. It is, therefore, certain that the mammalian life in the Old, New, and Australian worlds was as well marked out into geographical provinces in the Pleistocene age as at the present time, and that it has been continuous in these areas from that remote time to the present day.

CAVE, EDWARD, an English printer, was born at Newton in Warwickshire, in 1691, and died in 1754.

CAVE, DR. WILLIAM (1637-1713), an English divine, was born at Pickwell in Leicestershire. He was chaplain to Charles II., and in 1684 was installed as a canon

of Windsor. The two works on which his reputation principally rests are the *Apostolici*, or History of Apostles and Fathers in the three first centuries of the church (1677), and *Scriptorum Ecclesiasticorum Historia Literaria* (1688).

CAVEAT, a notice not to do an act, given to a judicial or ministerial officer by a party having an interest in the matter. Caveat, in patent law, is a notice not to issue a patent until the party filing the notice can be heard as to priority of invention.

CAVEDONE, JACOBO (1577-1660), an Italian painter, born at Sassuolo in the Modenese, was educated in the school of the Caracci, and under them painted in the churches of Bologna. His principal works are the *Adoration of the Magi*, *The Four Doctors*, and *The Last Supper*; and more especially *The Virgin and Child in Glory*, with San Petronio and other saints, painted in 1614, and now in the Bolognese Academy.

CAVENDISH, HENRY, a chemist and natural philosopher, was the son of Lord Charles Cavendish, brother of the third duke of Devonshire, and of Lady Anne Grey, daughter of the duke of Kent. He was born at Nice on the 10th October 1731. Little is known about his early education. He was for some time at Newcombe's school at Hackney, and afterwards went to Cambridge. Probably his taste for experimental research was mainly acquired from his father, who gave some attention to meteorological observations, and whose very accurate determination of the depression of mercury in barometrical tubes has formed the basis of some of the most refined investigations of modern times. His merits in science were more generally understood on the Continent; and he was made, though not till he had passed the age of seventy, one of the eight foreign associates of the Institute of France. He died unmarried on the 24th of February 1810.

For almost fifty years after Cavendish became a member of the Royal Society, he continued to contribute to the *Philosophical Transactions* some of the most interesting and important papers that have appeared in that collection; in which the precision of experimental demonstration, no less than the important scientific facts communicated, has been thought to have aided the further progress of chemical discovery. He may almost be called the founder of pneumatic chemistry, which had barely an existence when he began his researches.

Cavendish possessed a clearness of comprehension, and an acuteness of reasoning, which had been the lot of very few of his predecessors from the days of Newton.

CAVENDISH, THOMAS, the third circumnavigator of the globe, was born at Trimley St. Mary, in Suffolk, in 1560. For a short time he studied at Corpus Christi College, Cambridge, but quitting the university without a degree, he followed the court, and in a few years squandered away nearly all his inheritance. Turning his attention to maritime adventure with a view to repairing his fortune, he fitted out a ship in which he accompanied the expedition sent to Virginia in 1585 under the command of Sir Richard Grenville. On his return he resolved upon a predatory expedition against the Spaniards in the New World. Accordingly, on July 21, 1586, he sailed from Plymouth with three small vessels, passed through the Straits of Magellan, cruised along the coasts of Chili, Peru, and Mexico, and burnt and sunk nineteen ships, including the "Santa Anna," a vessel belonging to the King of Spain, with a cargo of immense value, which he captured off the coast of California. Returning home with his plunder by the Cape of Good Hope he reached Plymouth, September 9, 1588, having circumnavigated the globe in two years

and fifty days. It is said that his sailors were clothed in silk, his sails were damask, and his topmast covered with cloth of gold. His hastily-acquired riches did not last long, for in 1591 he had reduced himself to the necessity of undertaking another expedition with five vessels. This voyage was a most disastrous one. His crews were mutinous, and after leaving the Straits of Magellan they obliged him to steer for England. At this he became dispirited, and died of grief on the homeward voyage in 1592. The only geographical discovery of any importance which can be attributed to Cavendish is that of the harbor named by him Port Desire, on the east coast of Patagonia.

CAVENDISH, SIR WILLIAM, the second son of Thomas Cavendish of Cavendish in Suffolk, clerk of the pipe in the reign of Henry III., was born about the year 1505.

CAVENDISH, WILLIAM, first duke of Devonshire. See DEVONSHIRE, DUKE OF.

CAVITE, a fortified seaport town of the Philippines, capital of a province of the same name in the Island of Luzon, nine miles south of the city of Manilla, on a tongue of land in the bay. It was formerly the head naval depôt of the Spanish possessions in the East, and has an arsenal, a hospital, two churches, and three convents.

CAVORE, or CAVOUR, a town of Italy in the province of Turin, 25 miles south-west of the city of that name. It carries on silk-spinning and linen-weaving, as well as a trade in grain. Population 7380.

CAVOUR, COUNT. Camillo Benso di Cavour, the regenerator of Italy, and one of the greatest of modern statesmen, was born at Turin on the 1st of August 1810. The family of the Bensì was a very ancient one. The founder of it, a Saxon warrior named Hubert, after following Barbarossa in his Italian wars, and making a pilgrimage to the Holy Land, married a Piedmontese heiress about the middle of the 12th century, and settled on the very estate of Santena where the remains of his great descendant were lately laid.

Cavour spent the first ten years of his life in his father's house at Turin, enjoying all the advantages which favor the full and genial development of both mind and body. At ten years of age Camillo, being intended for the army, left home to enter the military academy. There he studied hard, especially mathematics.

At the military academy an incident occurred which is a clear indication of his character, and helped greatly to determine his future career. Being the son of a noble family, he was honored with the dignity of page in the royal household. An ordinary boy would have been highly delighted with this introduction to court life; but to Cavour its restraints, its etiquette, and its livery were a galling load, and, as he was by no means ready to learn the lessons of what is called a wise reticence, he was soon relieved of the honor, and marked as a dangerous fellow. During his brief military career he seems to have been stationed mostly at Genoa. This was a more independent life than he had hitherto led; and at Genoa, where the liberal element was naturally stronger than at the court and capital, young Cavour felt himself more at his ease than ever he had been at Turin. But when the shock of the French Revolution of the year 1830 began to be felt in Italy, and when men thought themselves at liberty once more to express their opinions on the state of their native country, Cavour was soon caught offending by the same excessive freedom of speech. He was sent, therefore, in a kind of honorable banishment to Fort Bard in the Val d'Aosta, nominally to superintend some mason-work there, but really as a

chastisement for his imprudence, and in the hope of a course of solitary reflection leading him at last to acquiesce in the existing state of things. Here Cavour was reduced to great straits for want of society, being obliged to while away his time at a certain game of tarots with the contractors. After six months he grew weary of it, and sent in his resignation.

He had now reached a most important turning-point in his career. Set adrift from the profession for which he had been educated, and suspected at court, there were three courses open to him, — to retire into private life in Piedmont, or to go abroad and quietly await a favorable opportunity for taking part in the deliverance of his country, or to join in the frequent conspiracies of the Carbonari and others for its immediate emancipation. The state of Italy was such as to justify the most extreme methods. He was now arrived at a time of life at which he could realize the full measure of the sufferings and humiliations his country had undergone. Endowed with the all too fatal gift of beauty, and covered with a population, which has excelled in every department of human activity, in arts and literature, in commerce and navigation, but was too disunited and far too demoralized to defend her, Italy had for centuries been the prey of every spoiler, of the Saracen and the German, the Frenchman and the Spaniard. Her national life had been repressed, her commerce ruined, her intellectual growth stifled, and the very soul of her people debased and perverted by priestcraft and foreign despotism. To most other nations their native land was an object of pride and affection, to the Italians Italy was the theme of shame and burning tears. The entrance of the armies of Republican France into Italy had been greeted as the dawn of deliverance, but in a little time their deliverers proved themselves to be only new masters. Yet the French occupation had the good effect of diffusing the liberal ideas of the French thinkers, and of accustoming the Italians to a comparatively just and well-ordered government, so that the desire for national regeneration became more ardent than ever. Then came the Peace of Vienna, which gave Austria direct or indirect rule over the whole of Italy, and in 1820 the rising in Naples and Piedmont, which furnished that power with the pretext of armed intervention, and the excuse for rivetting still faster the chains of the enslaved. At this period, then, the prospects of Italian liberty seemed darker than ever. Even Sardinia, though preserved from the worst reactionary extreme by the hatred of Austria, had been compelled to yield to the prevailing current. Charles Albert himself, the leader of the rising in Piedmont in 1821, was fain to atone for his liberal courses by joining in the worst measures of the reaction, and, when he ascended the throne in 1831, was instructed that he held his place only on his good behavior. In fact, from the beginning of his reign to 1847, when the revolution recommenced, he was only the nominal ruler of Sardinia; his ministers were the creatures of Austria, and received their instructions from Metternich. It is necessary to remember these circumstances if we are to appreciate rightly the services of Cavour. We must compare the Italy he has made not with countries which have for centuries had a free development of their natural life, but with Italy of 1820 or 1830, with Italy oppressed, demoralized, and disunited, while the noblest of her sons languished in Austrian prisons, or fretted their lives away in exile or in vain conspiracy. In these circumstances, Cavour, a youth of twenty, might have been led to join the secret societies which, under the direction chiefly of Mazzini, waged ceaseless war against the oppressors of Italy. From this his good sense rapidly saved him. Though prophetically aware of the near advent of democracy as

the ruling power in the world, he saw that conspiracies could not deliver Italy, that fitful plots backed by irregular bands were useless against a regular Government supported by veteran armies, and that fretful outbreaks would only irritate Austria and excuse further oppression without doing her any real injury. Being, therefore, unable to tolerate the policy of the clerical and aristocratic party of the time, and entirely disapproving of the methods of the Carbonari and "Young Italy," he saw that the best course in politics was a watchful inactivity. For sixteen years he was obliged to wait in private life, a keen and patient observer, acquiring that ripe and comprehensive wisdom which should fit him to be an effective servant of his country. During these long years we find him active in three special ways, — as the skilful promoter of the material interests of his country, especially in agriculture, as a keen student and observer of foreign countries, especially France and England, and as the author of papers in which he embodied some of the results of his observations.

These sixteen years were in every sense the training time of Cavour. Under the combined influence of practical experience in the conduct of business, and of philosophic insight into the principles of free government, as exhibited especially in England, he grew into that capable man who should guide Italy through the troubles of a very trying struggle to the honorable place she now occupies among the free nations of the earth. The years of waiting at length came to an end. Towards the end of 1847 all the provinces of Italy were in a highly-wrought state of revolutionary excitement. Pius IX., the new Pope, had put himself at the head of the movement, and, the clerical and liberal parties being thus united, the most extravagant hopes were entertained. The revolution carried everything before it, threatening only by its growing violence to defeat its own ends. Cavour saw the time for action was come, and, along with his friends Balbo and Santa Rosa, instituted at Turin a newspaper called the *Risorgimento*, as the organ of their common opinions, while, on the promulgation of the new constitution of Sardinia, which he was the first to suggest, he took his seat in the chamber as one of the members for the capital. Having long meditated on the political situation of Italy, and being perfectly at home on all political questions, he took a decided attitude from the beginning. Gradually the real greatness of his character began to appear above the contending elements which surrounded and obscured it. Passing on from those years of excitement and despair, when the hopes of Italy seemed again indefinitely deferred, to the beginning of 1853, when the elections after his first elevation to the premiership took place, we find the extreme left almost annihilated, and the extreme right greatly reduced in members. How had this change taken place? Five years of hard, adverse experience had taught his countrymen that he was right. Opposed to the excesses of the revolution, when the revolution was at its height, and to the pretensions of clericalism, when the revolution was for a time discredited, he was the real fixed point in the ever-shifting chaos, and the elements of confusion gradually gathered round him. Time, that tests all opinion and all character, had proved the soundness of his.

From 1850 to 1852 Cavour was an active member of Azeglio's administration; from 1852 to his death in 1861, he was, except for a short interval, the prime minister and virtual ruler of his country. From 1850 to 1855, when Sardinia began to take part in the Crimean War, the most conspicuous feature in his career was his relation to the church. With his usual penetration he soon perceived that the pretensions of the party now

dominant at Rome were utterly incompatible with the rights of a free modern society, and that the only solution of the difficulty was, that the state, while recognizing the right of the church to perfect freedom within the spiritual sphere, should assert for itself the same freedom within the civil sphere; in his own words, he desired a free church in a free state. While an extreme party counselled the confiscation of the church property, Cavour merely asserted the right of the state to secure a more equitable distribution of it among the clergy. On the question of civil marriage, and of the immunity of the clergy from the civil jurisdiction, he asserted the principle that the state should be absolute master within its own domain; with the spiritual rights of the church he never interfered. Those years were marked, too, by many energetic measures for the material improvement of Sardinia. The principles of free trade were introduced as far as possible, and a more judicious taxation.

Cavour's proposal to join the alliance of the Western powers against Russia met with the most violent opposition from both the extreme parties in the Sardinian Chamber, and even some of the most influential members of his own cabinet threatened to resign. But the king supported him; the country, as a whole, trusted him; and in the spring of 1855 the Sardinian army was on its way to the East. This audacious step of the Sardinian minister, which engaged one of the smallest kingdoms of Europe in a conflict among the greatest empires, caused some doubtful reflections at the various courts. It was understood by all as a bold assertion of Italy; and an Austrian minister declared it a pistol-shot fired at the head of Austria. At first, too, the Sardinian army experienced a hard fortune. It was attacked by cholera, and, for a long time, no opportunity occurred for distinguishing itself on the field of battle. The worst auguries of the opposition seemed destined to be fulfilled, and their fiercest denunciations of an expensive and Quixotic expedition justified, when tidings came of the battle of the Tchernaya. The enthusiasm was universal, the opposition was silenced, and Cavour rose higher than ever in the national estimation.

Then came the peace, considerably to the disappointment of Cavour, who had expected a prolonged war, and perhaps a general state of confusion, in which an adventurous state like Piedmont, that had everything to gain and little to lose, might greatly profit. It was not without great hesitation that he resolved to be present at the Congress of Paris. Yet, when there, he maintained the cause of Italy not less effectively than the Sardinian army had done in the Crimea. In all the questions that turned up he bore himself with such tact, knowing well how far the modesty of his position imposed upon him the duty of silence, and so skilfully brought forward the astonishing resources of a mind deeply versed in European questions, that he was immediately recognized as one of the ablest living diplomats, and took a place altogether out of proportion to the strength of the kingdom he represented. His most ardent wish was to see the grievances of Italy brought before the Congress. Accordingly, near the end of its sittings, Count Walewski, as president, introduced the subject, pointing out the danger to the European peace of the existing state of things, and suggested that a note should be addressed to the sovereigns of Italy counselling reform. This step took the members by surprise, and as Count Buol, the representative of Austria, protested against the discussion of the question, the matter ended, but not before Cavour had time to plead the cause of Italy. Afterwards, he followed up the advantage he had gained by a memorandum to the same effect addressed to the cabinets of London and Paris. Thus the gains of the war were not slight. The *moral*

of the Piedmontese army had been restored, and the name of Italy, not as a geographical idea, but as a nationality, brought before assembled Europe. Above all, enlightened Italians now felt that they had found a *man*; no sentimental dreamer of liberty, nor a fanatical conspirator, but a wise statesman, deeply read in the secrets of European politics, capable of commanding at once the confidence of Italy and the respect of Europe.

What was scarcely less important was, that Napoleon and France had become interested in Italy. Certainly, if Cavour had been free to choose, he would have preferred to inaugurate the regeneration of his country under the auspices of England. Her moral weight was greater, and she was less likely to exact painful sacrifices as the price of her support. His participation in the Crimean struggle had been above all advantageous to England; her liberal traditions and her feelings of gratitude alike led him to hope for her support. But to his chagrin, he found at the Congress that the state of European politics had made England the friend of Austria; and that his advocacy of the union of the Danubian Principalities in opposition to her views had alienated her, he soon found out in the coldness of the English ministers. Still he did not allow himself to be discouraged. He could count on Napoleon; Russia was estranged from Austria, Prussia was her rival in Germany, Hungary was discontented. To isolate Austria, to make friends of her enemies and rivals, to regain the good-will of England,—this was now the policy of Cavour. The hostility of Sardinia to Austria became every day more apparent and more provoking. The armaments of Sardinia, far too great for the resources or the ordinary requirements of the country, pointed to war as the only solution of standing difficulties. Accordingly, at Plombières, in the autumn of 1858, the programme of the war of 1859 was made out by the French Emperor and Cavour.

These were times of almost preternatural activity for Cavour. At one period or other he had filled almost every office in the administration; but in a crisis like the present, the constitution was suspended, and the prime minister became a kind of dictator, taking upon himself the entire government of the country, home and foreign affairs, and the ministry of war, as well as finance. The crisis was worthy of such a supreme effort, for bitterly disappointed as Cavour and the Italians were at the peace of Villafranca, the power of Austria in the peninsula had been broken, and Italy thenceforward had her destiny in her own hands.

On the conclusion of peace Cavour had resigned, but he returned to his post in January 1860, to resume under different conditions the work interrupted at Villafranca. The task was a tortuous and delicate one, and required skillful managing. The possession of Lombardy and the overthrow of Austria were the tangible results of the late campaign. With regard to the rest of Italy, and in the further development of events, four influences had to be considered:—France, which was bound by the treaty of Villafranca to the restoration of the old rulers of Central Italy; Austria, which insisted on the fulfillment of this and other conditions of the treaty; England, where in obedience to public opinion, which now began to understand the real issues at stake in Italy, the Government inclined to let the people have their own way; and the people of Italy itself, decidedly anxious for Italian unity, but in danger of falling into the ruinous excesses of 1848. It was now the business of Cavour so to manage the course of diplomacy as to prevent a collision with France or Austria, to gain time for the public opinion of Central and South Italy to declare itself, and to avoid everything like a disunion or uproar in bringing the various provinces under the gov-

ernment of Victor Emmanuel. First, then, in early spring, the population of Tuscany and Emilia, all but unanimously declared in favor of annexation, though this result was embittered by the consequent cession of Nice and Savoy to France, which claimed these districts as compensation and security. Cavour was severely reproached by many, and above all by Garibaldi, for this concession.

There are three considerations, which seem entirely to clear him from any appearance of want of patriotism,—the necessities of his position as regarded France, and the facts that the Savoyards are far more French than Italian, and from a geographical and military point of view belong more naturally to France than to Italy. In the south, where the Pope and the king of Naples still maintained a settled government, the unification of Italy seemed to meet with greater difficulties, when Garibaldi stepped forward to cut the knot. It was certainly not against the will of Cavour that the hero set out on his adventurous enterprise. He could evidently do nothing else than carefully watch the progress of the expedition, ready to own or disown it, according to the event. Accordingly, on Garibaldi's triumphant arrival at Naples, the Piedmontese army occupied the Marches and Umbria, crossed the Apennines, and on the plains of Campania shook hands with the volunteers of Garibaldi. The hero saluted Victor Emmanuel king of Italy. Next spring the first Italian Parliament met at Turin; and Cavour saw the dream of his youth realized. He had seen a new Italy spring from the ashes of the old, an Italy of representative government and of enlightened progress, the mistress of her own destinies, and a worthy member of the commonwealth of nations. Still much remained to be done, the sores caused by centuries of misgovernment required to be healed, the finances arranged, a navy created, the relations with the church regulated, and a thousand other matters attended to, ere the new Italy could answer to the ideal in the mind of Cavour. And now he was to be taken away in the very midst of his task. For many years, and especially during the slippery and delicate events of the last year, and during the harassing debates with the Garibaldian party as to the cession of Savoy and Nice, and the treatment of the volunteers, he had been doing an amount of work which no human strength could bear. There were premonitory symptoms enough; but the keen sense of the responsibilities weighing upon him seemed to increase as his strength declined. Medical men differed as to the precise form his disease took; but that overwork was the cause of it, no one doubted. After some days' illness, during which his feverish talk ran ever on Italy, he died on the 6th of June 1861.

CAVY, a name common to several species of Rodents belonging to the family *Cavidae*, all of which, at least in the wild state, are confined to the South American continent. They are small creatures, seldom exceeding a foot in length, burrowing in the ground, and feeding entirely on fruits and herbs.

CAWNPUR (CAWNPORE), a district of British India within the jurisdiction of the Lieutenant-Governor of the North-Western Provinces. It is bounded on the N. by the province of Oudh, the Ganges River forming the boundary line; on the E. by Fathipur district, on the S. by the Jumná, separating it from Hamirpur and Jalaun districts, and on the W. by Etawah and Farrakhabád districts. The district is situated between the Ganges and Jumná rivers, and is a portion of the well-watered and fertile tract known as the Doab. The general inclination of the country is from north to south. Besides the two great rivers, the principal streams are the Arand or Rhind, the Karan or Singar, the Isan, and the Pandu. An extension of the great Ganges Canal

also passes through the district. The total area is 2336.53 square miles. The total population of Cawnpur district amounts to 1,156,055, made up as follows:—Hindus, 1,065,786; Muhammadans, 89,215; Christians (*i.e.*, Europeans, Eurasians, and native Christians), 1054.

CAWNPUR CITY, the administrative headquarters of the district of the same name, and a large military cantonment, situated on the right or south bank of the Ganges. The river here is about 500 yards wide in summer, but when swollen by the rains increases to about a mile in breadth, with a strong and rapid current.

The importance of Cawnpur city dates from its selection as a military post, when the Ceded provinces were acquired by the East India Company in 1801. The one great event in its history is the siege of the British position by the rebel Sepoys during the mutiny of 1857, and the treacherous massacre which followed on the surrender of the garrison.

CAXAMARCA, or CAJAMARCA, a city of Peru, capital of a province of the same name, in the department of Truxillo. It is situated on the east side of the Western Andes, in a fertile valley on the Friznejas, at an elevation of about 9060 feet above sea-level, 72 miles N.N.E. of Truxillo.

CAXATAMBO, a town of North Peru, 120 miles N.N.E. of Lima, on the western declivity of the Andes. The inhabitants, numbering 6000, are occupied in rearing sheep and cattle, in the cultivation of corn and cochineal and the manufacture of woollen yarn, and in working the silver mines near the town.

CAXTON, WILLIAM (1422–*c.* 1491), the introducer of printing into England, was born, as he tells us himself, in "Kent in the Welde." Caxton appears to have been a man of considerable polish, and to have had a high reputation for sagacity; for in 1465, the treaty with the duke of Burgundy concerning the wool trade being about to expire, he was appointed by the king, along with Sir Richard Whitehill, to negotiate its renewal; and this attempt having failed, he was again sent on a similar mission three years later by the Mercer's Company, after the marriage of the duke to the sister of King Edward IV. In the next year, which is worthy of note as that in which he commenced his *Recuyell des Histories de Troye*, he was considered worthy to share in the gift of the "vin d'honneur," which was presented by the authorities of Bruges only to the most important men in the city. In the autumn of 1470 Caxton obtained, and availed himself of, an excellent opportunity for acquiring favor and influence in the English court; for Edward IV. had, with his supporters, been driven into exile, and had taken refuge in Bruges, at the court of his brother-in-law, the duke of Burgundy.

In 1471 Caxton, perhaps because he was beginning to find the duties of the office which he held too severe for his declining strength, or it may be because the interruption in the wool trade to which we have referred had diminished his fortune, entered the service of the duchess of Burgundy, from whom he received a yearly pension. At her command he continued the *Recuyell*, which was finished in September of that year.

About this time Caxton learned the art of printing. Wynkyn de Worde, his disciple, says that he was taught at Cologne by Ulric Zell; but Worde is often inaccurate, and he seems rather to have had Colard Mansion as his master. That printer was at Bruges; what need then for Caxton to go to Cologne? Besides Caxton's types are more like Mansion's than Zell's; and, indeed, it was long before he adopted the improvements which the latter introduced.

At what date Caxton brought his press to England and set it up at Westminster is quite uncertain. It was probably between 1471 and 1477. 1474 is the date of the *Game and Playe of Chesse*; but the tradition that this work was printed in England may not be correct. He received valuable patronage, being employed by Edward IV., Richard III., and Henry VII., by the duchess of Somerset, the earl of Arundel, Sir John Fastolf, and other nobles; and he appears to have been busy writing and printing up to his death, which occurred about 1492.

CAYENNE, an island of South America. See GUIANA.

CAYENNE, a seaport town, and the capital of French Guiana, on the north-west extremity of the island of Cayenne, and near the mouth of the river of that name. The town forms an almost perfect square, and has clean and well-macadamized streets. The houses, mostly of two stories, are of wood, strengthened on the first and ground floors by brick-work. The ports trading with Cayenne are Martinique, Nantes, Bordeaux and Marseilles, and Salem in the United States. Cayenne is the seat of government of French Guiana, and a penal settlement for political offenders. It is provided with an efficient police force, and is well governed. Food as well as clothing is exorbitantly dear, the only cheap articles of consumption being bread and French wines. The temperature of Cayenne is between 76° and 88° Fahr. throughout the year; but the heat is tempered by easterly winds. Between December and March a north wind blows, unfavorable to weak constitutions. Yellow and other fevers often attack the inhabitants of the town, which, owing apparently to the vast swamp that flanks one side of it, is far from healthy. The death-rate amongst the coolies is especially high. Population, about 7000.

CAYENNE PEPPER, GUINEA PEPPER, SPANISH PEPPER, CHILLY, a preparation from the dried fruit of various species of *Capsicum*, a genus of the Natural Order *Solanaceæ*, to which belong also the potato, tomato, and bittersweet. The true peppers are members of a totally distinct order, the *Piperaceæ*.

Several species or varieties are used to make Cayenne pepper. The annual or common capsicum, the Guinea Pepper plant, was brought to Europe by the Spaniards, and was grown in England in 1548. It is indigenous to South America, but is now cultivated in India, Hungary, Italy, Spain, and Turkey, with the other species of capsicum. It is a hardy herbaceous plant, which attains a height of 2 or 3 feet, and bears a pod usually of an ovate shape, and yellow, red, or black in color. The Spur or Goat Pepper has been an inmate of English gardens since 1656. It is a dwarf shrub, a native of the East Indies, which produces a small pod, having very pungent properties. Bonnet Pepper is a species much esteemed in Jamaica; it bears very fleshy fruits. Other well-known kinds of capsicum are the Cherry Pepper; Bell Pepper, which has thick and pulpy fruit, well adapted for pickling; and Berry or Bird Pepper. The West Indian stomachic *Man-dram* is prepared by mashing a few pods of bird pepper and mixing them with sliced cucumber and shallots, to which have been added a little lime-juice and Madeira wine. Chillies, the dried ripe or unripe fruit of capsicums, are used to make chilly-vinegar, as well as for pickles. Cayenne pepper is manufactured from the ripe fruits, which are dried, ground, mixed with wheat flour and made into cakes with yeast; the cakes are baked till hard like biscuit, and then ground and sifted. The pepper is sometimes prepared by simply drying the pods and pounding them fine in a mortar. Cayenne pepper is occasionally adulterated with red lead, vermilion, ochre, salt, ground-rice, and turmeric.

The taste of the pepper is impaired by exposure to damp and the heat of the sun. Chillies have been in use from time immemorial; they are eaten in great quantity by the people of Guiana and other warm countries, and in Europe are largely consumed both as a spice and as medicine. Their hot and biting taste is due to the presence of the alkaloid *Capsicine*, a reddish body, having a balsamic and extremely acrid and irritating odor. The cayenne pepper plants, with the rest of the Solanaceæ, have not the narcotic properties of the genera of the most nearly allied order Atropaceæ, unless, as has been affirmed, these are resident in the pulp of certain species of capsicums. Medicinally, Cayenne pepper is used with cinchona in lethargic affections, also in atonic gout, accompanied by flatulence, and in tympanitis and paralysis. It is employed as a stimulant in those forms of dyspepsia which are due to the faulty chymification and defective secretion of gastric juice. In malignant scarlatina it is used either in the form of a tincture or as a gargle. To make the tincture, a pint of vinegar is boiled with two tablespoonfuls of powdered chillies and a teaspoonful of salt, and then strained. Cayenne pepper taken in large quantities acts as an irritant poison. A dose of powdered capsicum is from 1 to 5 grs., and of the tincture from 5 to 15 drops.

CAYLUS, ANNE CLAUDE PHILIPPE DE TUBIÈRES, COMTE DE, Marquis d'Esternay, Baron de Bransac, was born at Paris in October 1692. He was the eldest son of Lieutenant-General Count de Caylus, and while a young man he distinguished himself in the campaigns of the French army, from 1709 to 1714. After the peace of Rastadt, he spent some time in travelling in Italy, Greece, the East, England, and Germany, and devoted much attention to the study and collection of antiquities, publishing several works on the subject. He was also an admirable engraver, and he copied many of the paintings of the great masters. He did his best to assist the cause of art, by writing the lives of the most celebrated painters, by causing engravings to be made, at his own expense, of Bartoli's copies from ancient pictures, and by publishing his *Nouveaux sujets de peinture et de sculpture* and *Tableaux tirés de l'Iliade, de l'Odyse, et de l'Enéide*. Caylus is besides known as the author of a number of romances, humorous pieces, and fairy tales. He was a man of singular simplicity, generosity, and kindness.

CAZALLA DE LA SIERRA, a town of Spain, in the province of Seville, 36 miles north of the city of that name, on the Sierra Morena. Population, 6850.

CAZEMBE is properly the hereditary name of an African chief, whose territory is situated to the south of Lake Moero and the north of Bangweolo. In the end of the last century the authority of the Cazembe was recognized over a very extensive district, but the prestige of the dynasty has greatly diminished, and the present representative does not even rank first among the tributaries of the Muatyanvo of the Rua or Moluwa kingdom. The country, which has no more distinctive title than the land of the Cazembe, is estimated to have an area of 120,000 square miles and a population of 500,000. It forms a kind of hollow plain, and is richly watered by numerous rivers. Of these the most important is the Luapula, which flows from Bangweolo to Moero, and forms, according to the conjecture of Cameron, one of the head waters of the Congo. The population consists mainly of two races, the Messiras and the Campolólas,—of whom the former are native and subjugated, and the latter intrusive and dominant. The Campolólas alone are eligible to public offices, and their language is that spoken at court.

CAZORLA, a town of Spain, in the province of Jaen, on the Vega. It is generally well built, and contains

two ancient castles (one of them Arabic), several hospitals, a spacious theatre, a very ancient church, and several convents. Population, 4980.

CAZOTTE, JACQUES, a French author, was born at Dijon in 1720. He was educated by the Jesuits, and at twenty-seven he obtained a public office at Martinique, but it was not till some years after, on his return to Paris, that he appeared as an author. His first attempts, a mock romance and a coarse song, gained so much popularity, both in the court and among the people, that he was encouraged to essay something more ambitious. He accordingly produced his *Roman d'Olivier*. He also wrote a number of sportive effusions, such as *Diable Amoureux*, among which was a continuation of Voltaire's *Guerre Civile de Genève*, the verisimilitude of which was such that no one had the least suspicion of the deception. From all this gaiety and licence Cazotte rushed into the opposite extreme, embracing the views of the Illuminati, and declaring himself possessed of the power of prophecy. It was upon this fact that La Harpe based his famous jeu d'esprit, in which he represents Cazotte prophesying the most minute events of the revolution. Cazotte was attached to the royal cause, and, on the discovery of some of his letters in August 1792, was arrested; and, though he escaped for a time, through the love and courage of his daughter, he was executed on the 25th of the following month.

CEARÁ, or FORTALEZA, or VILLA DO FORTE, a town of Brazil, in a province of the same name, situated at the mouth of the River Ceará, on an open bay between the promontory of Mararanguape and Cape Mocaripe. It consists of a new and old town, and has regular and well-paved streets. Opened to general trade in the present century, it exports a considerable quantity of coffee, cotton, and sugar; but it has recently suffered somewhat by the formation of the new port of Aracaty, about ninety miles distant. Population about 20,000.

CEBES of Thebes, a disciple of Socrates, mentioned by Plato in the *Phædo*, and by Xenophon as distinguished both for his virtue and for his love of truth, was the author of the once popular didactic dialogue, the *Tabula Cebetis*. This work, which professes to be an explanation of an allegorical picture, commences with the Platonic doctrine that men enter the earth from a pre-existent state. There they have been taught how to guide their course in this world; but the draught of oblivion of which all must drink—though not all in equal degree—causes them to forget the instruction. Many allurements entice them to vice, but by patience and endurance they may attain virtue and happiness. The sciences—grammar, geography, arithmetic, geometry, and music—are declared not to be the true discipline, but yet to be useful, especially as a kind of restraining bridle for the young. From certain passages, which are probably interpolations some have supposed the work to be the production of a Stoic of the same name, who lived under M. Aurelius. The *Tabula Cebetis* has been translated into all the European languages.

CEBU, a city of the Philippine Islands, on the eastern side of an island of the same name, about 400 miles S. E. of Manilla. It is the oldest provincial town in the archipelago, and still ranks as one of the best built; while its position renders it the chief commercial centre for the Southern Philippines. It is the residence of a military governor and an alcalde, as well as of the governor-general of the Vissagas; and its public buildings comprise a cathedral, an episcopal palace, and a lazaretto. It exports sugar, hemp, tobacco, and sapan-wood. Its foreign goods are obtained *via* Manilla. There is an old fort built of coral, and in the island of Matan opposite

the town is situated the grave of Magellan. The population, inclusive of the suburb of St. Nicholas, is reckoned at 34,000.

CECCO D'ASCOLI (1257-1327) is the popular name of FRANCESCO DEGLI STABILI, a famous mediæval encyclopædist and poet,—Cecco being the diminutive of Francesco, and Ascoli, in the marshes of Ancona, the place of the philosopher's birth. He devoted himself to the study of mathematics and astrology, and in 1322 was made professor of the latter science at the university of Bologna. It is alleged that he entered the service of Pope John XXII. at Avignon, and that he cultivated the acquaintance of Dante Alighieri, only to quarrel with the great poet afterwards; but of this there is no evidence. It is certain, however, that, having published a commentary on the sphere of John de Sacrobosco, in which he propounded audacious theories concerning the employment and agency of demons, he got into difficulties with the clerical party, and was condemned in 1324 to certain fasts and prayers, and to the payment of a fine of seventy crowns. To elude this sentence he betook himself to Florence, where he was attached to the household of Carlo di Calabria. But his freethinking and plain-speaking had got him many enemies; he had attacked the *Commedia* of Dante, and the *Canzone d'Amore* of Guido Cavalcanti; and his fate was sealed. Dino di Garbo, the physician, was indefatigable in pursuit of him; and the old accusation of impiety being renewed, Cecco was again tried and sentenced, this time to the stake. He was burned at Florence the day after sentence, in the seventieth year of his age.

CECIL, ROBERT, EARL OF SALISBURY (1550-1612), was the son of Lord Burghley, whose character and ability he inherited, and by whom he was carefully educated for political life. After residing at Cambridge and representing Westminster in parliament, he received a post in the French embassy, and was next made Secretary of State under Walsingham. He was also appointed Chancellor of the Duchy of Lancaster, and Lord Privy Seal, and he succeeded his father as Master of the Court of Wards and Walsingham as chief Secretary of State. It is noteworthy that, though his health was delicate and his person deformed, he served as a volunteer against the Armada. His career was simply a continuation of his father's. He toiled as laboriously and as carefully, and carried out the same system of espionage with equal success. The interest which he took in the domestic affairs of the country and in the state of Ireland was as great; and the object of his foreign diplomacy was the same,—to prevent Spain from gaining a mastery which would be fatal to England. But he followed the wisdom of his father too well; his policy was wanting in originality and depth of insight; and he has left no mark upon history.

During the reign of the queen he had entered into correspondence with James, upon whose accession he was reappointed to the post of Secretary of State and was raised, in successive years, to the dignities of baron of Essenden, Viscount Cranborne, and earl of Salisbury. In 1608, on the death of the earl of Dorset, he added the office of Lord High Treasurer to that of Secretary.

Cecil has been much blamed for his conduct towards three of the greatest of his contemporaries. Of his cousin, Francis Bacon, he appears to have been jealous; in the noble qualities of the earl of Essex he saw nothing but a dangerous hotheadedness; and probably his opinion was similar about Raleigh, who, though more of a politician, was usually as little inclined to be cautious or conciliatory. But all this argues no extraordinary baseness; he was merely wanting, by nature and through education, in breadth of sympathy. The as-

sertion that he was the sole cause of all Raleigh's troubles is unfounded, and is, indeed, contradicted by two facts:—first, that on his trial Cecil more than once insisted that he should meet with all consideration, and should be allowed to urge all he could in his own defense; and, secondly, that it was after Cecil's death that the bitterest feeling against him was displayed, and that he was offered as a sacrifice to Spain.

CECIL, WILLIAM, LORD BURGHLEY or BURLEIGH, an English statesman, born in 1520, was the son of Richard Cecil, Master of the Robes to Henry VIII. After distinguishing himself at Cambridge, he entered Gray's Inn at twenty-one, and soon after obtained the reversion of the office of *custos brevium* at the Court of Common Pleas. He increased his political influence by marriage, first with the sister of Sir John Cheke, and then with the daughter of Sir Anthony Cook; and, at length, through friendship with the protector, Somerset, he became Secretary of State in 1548. After sharing the imprisonment of Somerset, his prudence and sagacity enabled him to regain his office under Northumberland. Yet, when Edward died, he contrived to escape the danger which threatened him on every side. He signed the instrument making over the crown to Lady Jane Grey, but only as a witness; and he kept clear of religious difficulties by displaying no dislike to Catholicism. Indeed it is probable that he really felt little or none. He confessed, attended mass, took a priest into his house; he escorted Cardinal Pole from Brussels, and cultivated his friendship. And, though he opposed the court party in parliament, and thus kept up his connection with his old friends, his opposition was so moderate as to be perfectly safe. He maintained a constant correspondence with the Princess Elizabeth, and on the death of her sister at once prepared a proclamation declaring her queen. He was immediately appointed Secretary of State, and member of the Privy Council; and from this time he was the foremost minister of the Crown. Foreign ambassadors often regarded him as the possessor of unbounded power, and as practically head of the Government and ruler of the queen, but, in fact, his influence was not so supreme, nor his favor with Elizabeth so uniform. No man, indeed, could always guide that strong-willed monarch; and Cecil had no ambition to be a mere favorite and tool. Though not an enthusiast, and though he never fought for a hopeless cause, he had far nobler aims than personal advancement.

Though his statesmanship lay not so much in a power of deep and rapid insight as in the possession of a mind patient to take account of the minutest points, and able to weigh all considerations impartially, he was capable of independent thought and firm decision, and his plans often conflicted with the inconstant intrigues of the queen. On such occasions he did not shrink from telling her that she was wrong; he rebuked her stinginess and treachery, and he several times braved her passionate resentment. From her accession he was Secretary of State, and from 1572 he was Lord High Treasurer; but his service brought him pecuniary loss, and he received no honors but the Mastership of the Court of Wards, the order of the Garter, and the barony conferred upon him in 1571, after thirteen years of service. He was absolutely incorruptible. He refused to use or to sell the office of Royal Exchanger, though it would have brought him several hundred thousand pounds. Mendoza in vain tried to bribe him; to Cathrine Medici's splendid offers he replied that he served none but his God, his mistress, and his country; and he refused to share in the gold of which Drake had robbed the Spaniards. Into the deeper passions of his time he did not enter. It is true that as his life advanced he grew

more and more attached to the Protestant cause. He saw that his country had identified herself with that cause, and he was, besides, firmly opposed on political grounds to the pretensions of the Papacy. He appears, however, to have had no special devotion to any form of doctrine; and he opposed the persecution of loyal Puritans and of loyal Catholics. When, indeed, either Catholic or Puritan became disloyal or otherwise dangerous he lost all compunction. He hated and persecuted the Jesuits because they placed the Pope above the laws, but he twice took the trouble to explain to the world that this was the sole reason. He was affected with no inconvenient weakness of sympathy; he could ruthlessly crush any one who seemed dangerous to the state. Essentially honest as he was, he scrupled at no espionage or treachery to gain the secrets of his enemies. His emissaries were everywhere. He kept Herle in the Marshalsea, examined him before the council, and threatened him with torture that the Catholic prisoners might believe him to be a martyr to their cause, and might intrust him with their plans; and he made Bishop Parker appear in the guise of the Catholic Dr. Story to take the confession of a prisoner whom torture could not move. When his policy was opposed to Spain he did not scruple to get up demonstrations against the Spanish ambassador, and to cast into prison all the Spanish merchants in London. Plots against his own life never deprived him of his calmness; he watched De Quadra's conspirators quietly, day after day, though every day he knew they might attempt to murder him, and let them alone till he had gained all the information to be got. Day after day Norfolk and Arundel came to the council intending to arrest him; and day after day his cool sagacity defeated them. Yet when occasion required he knew how to act with prompt and vigorous decision. He was always struggling against the queen's variability. Being eager that she should marry, he urged her again and again to decide at once; and a paper is extant which he presented to the queen when the last marriage proposal was finally cast aside. In it he sketches a great and able policy. Preparations were to be made for war by land and sea; honors and wealth were to be applied to attach the hearts of the foremost men of the nation, and no longer wasted on useless favorites; Ireland was to be ruled with attentive care and in a conciliatory spirit; and, lastly, there was to be a grand alliance of all Protestants — of England, Sweden, Denmark, Scotland, and the Protestants of Germany, France, and Flanders. With regard to the Queen of Scots he pressed for the most vigorous action. Undeterred by the anger which Elizabeth showed in striking his name from the list of lords-lieutenants, he appeared at Mary's trial to meet her denial of the charges made against her with a stern contradiction. When, at last, Elizabeth signed the warrant, he ventured to oppose her express wish by calling the council to his own house to discuss the matter; and he dared to intercede for Davison when, in a torrent of passion, she sent him to the Tower. The result was that he was fiercely ordered out of her presence, and for two months the queen refused to see him.

In the industry of the country Cecil took the greatest interest. He entertained serious apprehensions which were commonly felt on account of the increase of importation, the exportation of gold, and the falling off of agriculture; and he protested against the growing use of wine, silk, and other foreign commodities. To make up for the loss to the shipping which the downfall of Catholicism had caused by diminishing the demand for fish, he obtained the passing of a curious law which made the eating of flesh on Friday and Saturday, and on Wednesday unless fish dishes were also placed on the

table, a misdemeanor. In short, Cecil devoted himself to the service of his country with the most painstaking and disinterested laboriousness. From the peculiarity of his method of working we have more complete information concerning the details of his career than is usually the case with statesmen; for it was his practice not only to draw up papers of advice to the queen, but also before deciding on any question to set out on paper all the considerations on both sides; and many of these documents, together with many of the letters which he either received or wrote, can still be consulted (see *Scrinia Ceciliana*, 1663, the state papers published in 1740 and 1759, and Tytler's *Ancient Letters*, 1839). Cecil died in office in August 1598.

CECILIA, SAINT. A passing word in the very apocryphal legend of this saint has caused her name to be one of the best known in the calendar, and oftenest in the mouths of men. It is related, among other circumstances purely legendary, that Cecilia often united instrumental music to that of her voice in singing the praises of the Lord. On this all her fame has been founded, and she has become the special patroness of music and musicians all the world over. Half the musical societies in Europe are named after her, and her supposed musical acquirements have led the votaries of a sister art to find subjects for their works in episodes of her life. The grand painting by Domenichino, at Bologna, in which the saint is represented wrapped in an ecstasy of devotion, with a small "organ," as it was called, — an instrument resembling a large kind of Pandean pipes, — in her hand, is well known, as is also Dryden's beautiful ode.

CECROPS, probably a Pelasgian hero, was, according to Athenian tradition, the first king of Attica, and the founder of its political life. He was said to have divided Attica into twelve parts, to have instituted marriage, and introduced a new form of worship. Some late Greek writers held that he came from Egypt. He is represented as human as regards the upper part of his body, while the lower is shaped like a dragon.

CEDAR, a name applied to several members of the Natural Order *Coniferae*. The word *Cedar* is probably derived from the Arabic *Kedr*, worth or value, or from *Kedrat*, strong. The name has been supposed by some to have taken its origin from the brook Cedron, in Judæa. The far-famed Cedar of Lebanon, is a tree which, on account of its beauty, stateliness, and strength, has always been a favorite with poets and painters; and which, in the figurative language of prophecy, is frequently employed in the Scriptures as a symbol of power, prosperity, and longevity. It grows to a vertical height of from 50 to 80 feet — "exalted above all trees of the field," and at an elevation of about 6000 feet above sea-level. The cedar of Lebanon is cultivated in Europe for ornament only. It can be grown in parks and gardens, and thrives well; but the young plants are unable to bear great variations of temperature.

There are two sub-species or varieties of *Abies Cedrus* — *A. Deodara*, the deodar, or "god tree" of the Himalayas, and *A. atlantica*, of the Atlas range, North Africa. The deodar flourishes in all the higher mountains from Nepal up to Kashmir, at an elevation of from 5500 to 12,000 feet; on the peaks to the northern side of the Boorung Pass, it grows to a height of 60 to 70 feet before branching. The wood is close-grained, long-fibred, perfumed, and highly resinous, and resists the action of water. The foliage is of a grey-green, the leaves are slender, and the twigs are thinner than those of *A. Cedrus*. The tree is employed for a variety of useful purposes, especially in building. It is now much cultivated in England as an ornamental plant. *A.*

atlantica has shorter and denser leaves than *A. Cedrus*; its wood also is hard, and more rapid in growth than is that of the ordinary cedar. It is found at an altitude above the sea of from 7,000 to 9,000 feet.

The name cedar is applied to a variety of trees. The Bermuda cedar and the red or American cedar are both much used in joinery and in the manufacture of pencils; though other woods are now superseding them.

CEDAR CREEK is a river of Virginia, which gives name to a battle fought October 19, 1862, when the Federals under Generals Sheridan and Wright defeated the Confederates under General Early.

CEDAR RAPIDS, a city of Iowa, is situated on Cedar river, in Linn county, and on the Burlington, Cedar Rapids & Northern, Chicago & Northwestern, Chicago, Milwaukee & St. Paul, and Illinois Central railroads, 220 miles from Chicago, and seventy-nine miles from Dubuque. Extensive manufactures are carried on here, and a very large wholesale and jobbing trade is conducted. Two daily and eight weekly papers are issued, besides one semi-monthly and five monthly publications. The city also contains six banks, twenty churches, a fine educational system, an opera house (one of the finest in the State), electric light, gas and water works, half a dozen well-managed hotels, in addition to stores, packing houses, elevators, and other enterprises of a commercial character. The productive industries include manufactories of hardware specialties, furniture, tiles, cornices, clothing, candy, vinegar, soap, wagons, flour, oatmeal, etc. The city is also the location of the Coe Presbyterian College, and of the car-works owned and operated by the Burlington & Northern railroad. Population, 18,020.

CEFALU, a seaport town on the north coast of Sicily, in the province of Palermo, and thirty-nine miles east-southeast of the town of that name. The new town, founded by Roger I. of Sicily in 1131, is situated at the base of a steep promontory 1,191 feet in height, which overlooks the magnificent bay of Cefalu. Population, 10,200.

CEHEGIN, perhaps the ancient *Segisa*, a town of Murcia in Spain, four miles east of Caravaca. Its houses are generally built of marble from the neighboring quarries. Population, 6,200.

CEILING (Fr. *ciel*; Lat. *cælum*, heaven). This term seems to have been suggested by the use of arched coverings for churches, and even for rooms, which prevailed in the Middle Ages, and was not unknown to the Romans. Whether the term was further suggested by the habit of tinting ceilings of a blue color, and decorating them with stars, or whether that usage arose from the use of the term already introduced, is more doubtful. Arched ceilings among the Romans were known by the name *camera* or *camera*, the Greek origin of which seems to furnish an argument in favor of the view that the arch was known to the latter people. The oldest flat ceiling in existence is believed to be that of Peterborough Cathedral, England.

CELANO, a town of Italy, in the province of Abruzzo Ulteriore and district of Avezzano, about seven miles east of the town of that name. It is finely situated on a hill about four miles from the former bed of Lake Celano, and has an interesting mediæval castle of the fifteenth century, celebrated for its connection with the unfortunate Countess Covella. Though the town never recovered from the vengeance inflicted on it in 1223 by Frederick II., it continued to be the center of a countship which was bestowed in 1463 on Antonio Piccolomini.

The neighboring lake, known to the ancients as *Lacus Fucinus*, had till the beginning of this century an area of 37,990 acres, and was remarkable for its frequent

changes of level. As early as the first century, the Emperor Claudius constructed a subterranean passage by which the surplus waters found an outlet to the Liris or Garigliano. No fewer than 30,000 workmen were employed for a space of eleven years; and the undertaking seems to have been as successful as it was bold. But in the following reign the passage was allowed to fall into disrepair; and it has been reserved to the present generation to see the old Roman works not only restored, but surpassed. From 1793 to 1810 the lake had been gradually rising till it was 30 feet above its former level; and the attention of the Neapolitan Government was directed to the danger. Little, however, was effected till 1852, when the necessary works were undertaken by a company, under the direction of Mr. C. Hutton Gregory, who proceeded to widen the emissarium and support the walls with arched work. The shares of the company were gradually bought up by Prince Giuilo Torlonia of Rome, who successfully carried on the operations at his own expense till his death in 1871. About 36,000 acres of rich arable land have been reclaimed, and the corn-crops yield a profit of from 30 to 36 per cent. The new tunnel is about four miles long, and has a cross section of 21 square yards. The honor of the engineering has been shared by Montricher, who died in 1858, Bermont, and Brisse.

CELAYA, a Mexican town of some importance, situated in the State of Guanajuato. It has a population of 30,000.

CELEBES, an island of the East Indian Archipelago, separated from Borneo on the W. by the Strait of Macassar and bounded on the E. by the Strait of Molucca. Its general outline is extremely irregular, and has been compared to that of a starfish with the rays torn off from the west side. It consists of four great peninsulas, extending from a comparatively small nucleus towards the N.E., E., S. E. and S., and separated by the three large bays of Gorontalo or Tomini, Tolo or Tomaiki, and Boni. Of these bays the first is by far the largest, the other two having much wider entrances and not extending so far inwards. Most important among the smaller inlets are the bays of Amurang, Kwansang, and Tontoli on the north coast, Palos and Parre-Parre on the west, and Kendari or Vosmaer on the east. A large part of the island is but partially explored, but the general character of the whole seems to be more or less mountainous. Well-defined ranges prolong themselves through each elevation. Naturally there are no great river basins or plains, but one of the features of the island is the frequent occurrence, not only along the coasts, but at various heights inland, of beautiful stretches of level ground, often covered with the richest pastures. The substructural rocks are mainly of igneous origin, the most frequent being basalt.

In spite of its situation in the centre of the archipelago, Celebes possesses a fauna of a very distinctive kind. The number of species is small; but in many cases they are peculiar to the island. Of the birds, for example, about 200 species are known; and of these no fewer than 80 are peculiar. The mammalian species number only 14, and of these 11 belong almost entirely to the Celebesian area. Most remarkable are the *Macacus niger*, an ape found nowhere else but in Batchian; the *Anoa depressicornis*, a small ox-like quadruped, which inhabits the mountainous districts; and the babirusa or pig-deer of the Malays. There are no large beasts of prey, and neither the elephant, the rhinoceros, nor the tapir is represented. Wild-buffaloes, swine, and goats are pretty common; and most of the usual domestic animals are kept in greater or smaller numbers. Though they receive but little attention, the cattle are good. The horses are in high repute in the archipelago;

formerly about 700 were yearly exported to Java, but the supply has considerably diminished.

Vegetation is, it need hardly be said, extremely rich; but there are fewer large trees than in the other islands of the archipelago. Of plants that furnish food for man the most important are rice, maize, and millet, coffee, the cocoanut tree, the sago-palm, the obi or native potato, the bread-fruit, and the tamarind; with lemons, oranges, mangosteens, wild-plums, Spanish pepper, beans, melons, and sugar-cane. The shaddock is to be found only in the lower plains. Indigo, cotton, and tobacco are grown; the bamboo and the ratan-palm are common in the woods; and among the larger trees are sandal wood, ebony, sapan, and teak. The gemuti palm furnishes fibres for ropes; the juice of the *Arenga saccharifera* is manufactured into sugar and a beverage called sagueir; and intoxicating drinks are prepared from several other palms.

The whole island is practically in the hands of the Dutch Government, though a comparatively small portion is under their direct administration, and a large number of petty princes are still permitted to do very much as they please in the internal management of their territories. For administrative purposes it is distributed among the residencies of Celebes, Manado, and Ternate, of which the two former belong solely to the island, while the third includes a large part of the Moluccas.

The residency of Celebes, formerly known as the Government of Macassar, comprises all the various states that surround the Gulf of Boni, and is divided into the following departments:—(1) Macassar, (2) the Northern Districts, (3) the Southern Districts, (4) Bulecomba and Bonthain, and (5) Saleyer and the subordinate islands, Buton, Sumbawa, and Bima.

The department of Macassar, or Mangkasara as it is called in the native language, is one of the oldest parts of the Dutch possessions. It contains Macassar, the capital of the residency, which is situated on the west coast of the southern peninsula, forms one of the principal ports in the archipelago, and has a population of from 15,000 to 20,000. The inhabitants of the department consist mainly of Macassar and Malays proper, Endinese from the Island of Flores, and immigrants from the neighboring kingdom of Wadjo. The foreign colonies are each under the management of a separate captain, and the Malays are also under the care of a head priest. The Macassars proper are one of the most important peoples in the island. They belong to the Malay race, are well built and muscular, and have in general a "dark-brown complexion, a broad and expressive face, black and sparkling eyes, a high forehead, a flattish nose with large alæ, a large mouth, and black soft hair, which they let fall over their shoulders." The women are sprightly, clever, and amiable, and in former times were bought for large prices. The men are brave and not treacherous, but ambitious, jealous, and extremely revengeful. Drunkenness is rare, but to gambling and cock-fighting they are passionately addicted; and so frequent among them is the running amuck that the Dutch authorities had to dismiss the Macassar soldiers from their service. In all sorts of bodily exercises, as swinging, wrestling, dancing, riding, and hunting, they take great pleasure. Though they call themselves Mahometans, their religion is largely mingled with pagan superstitions; they worship animals, and a certain divinity called Karaeng Love, who has power over their fortune and health. Their language, which belongs to the Malayo-Javanese group, is spoken by about 300,000 persons, in Macassar proper, Goa, Tello, Sanraboni, Turateya, Bulecomba, Tanralili, and a great many parts of the southern peninsula: but

it has a much smaller area than the Buginese, which is the language of Boni. It is very deficient in generalizations; thus, for example, it has words for the idea of carrying in the hand, carrying on the head, carrying on the shoulder, and so on, but has no word for the notion of simply carrying. It has adopted a certain number of vocables from Sanskrit, Malay, Javanese, and Portuguese, but on the whole is remarkably pure, and has undergone comparatively few changes in the course of the last two or three centuries. It is written in a peculiar character, which has displaced, and probably been corrupted from, an old form employed as late as the 17th century. Neither bears any trace of derivation from the Sanskrit alphabet. The priests affect the use of the Arabic letters. The literature is very poor, and consists largely of romantic stories from the Malay, and religious treatises from the Arabic. Of the few original pieces the most important are the early histories of Goa, Tello, and some other states of Celebes, and the *Rapang*, or collection of the decrees and maxims of the old princes and sages. The more modern productions are letters, laws, and poems, many of the last having very considerable beauty.

The department of the Northern Districts, called also Maros (properly Marusa), from the chief town, lies to the north of Macassar, and is divided into twenty-six districts.

The department of the Southern Districts, or Takalla, lies to the south-west of Macassar, and is divided into two parts by the interposition of the little independent state of Sanraboni.

Separated from Turateya by the River Tino is the department of Bonthain and Bulecomba, a thinly-peopled and mountainous country, chiefly remarkable for the lofty summit of Lompobattang or Dikbuik, more familiarly known as the Peak of Bonthain, which has a height of about 11,000 feet.

To the north of these two states lies the important kingdom of Boni, of which an account will be found in a separate article, and to the north of Boni, and separated from it by the River Chinrana, is the rival kingdom of Wajo or Wadjo, with a coast line of about 50 miles along the Gulf of Boni. It is governed by about forty chiefs or nobles, who are almost independent in their respective districts and maintain their individual bands of followers, but at the same time recognize the overlordship of the prince.

To the south-west of Wadjo is the kingdom of Sopeng, which was long connected by intermarriages with Boni. The ground is very fruitful, and large quantities of rice are exported. The capital was formerly a place of the same name on the coast; but the rajah removed his residence to Sengkang on Lake Tempe. Sopeng recognized the Dutch supremacy in 1825. The population is estimated at 18,000.

To the north of Sopeng lies the territory of Adja Tamkarang, under the government of the prince of Lidenring, who takes his title from a small principality of that name. It is traversed by the Sadang River, one of the most important of those that flow into the Strait of Macassar.

Round the head of the Bay of Boni stretches the kingdom of Luvu (Loewoe), a well-peopled district, productive of gold and excellent iron, but greatly depressed by an unsatisfactory government. To the south-west of Luvu lie the districts of Ussu and Lellevau, and south of these the state of Baikonka or Minkoko, with its capital Pansulai on the Gulf of Boni; but the whole of this region is comparatively unexplored. The Minkokos have a considerable resemblance to the Dyaks of Borneo, and maintain a similar custom of head-hunting. Their language is akin to Buginese.

At the very end of the eastern peninsula is situated the district of Polean Rumbia, conterminous on its north-east boundary with the more important territory of Lavui, which stretches along the coast of the Bay of Tolo, and is tributary to the king of Boni. The latter district possesses in Kondari or Vosmaer's Bay one of the finest harbors in the archipelago, and it carries on a certain amount of traffic. The coast is frequented by numbers of the Bajows.

CELERY (*Apium graveolens*), a biennial plant, which, in its native condition, is known in England as smallage. In its wild state it is common by the sides of ditches and in marshy places, especially near the sea, producing a furrowed stalk and wedge-shaped leaves, the whole plant having a coarse, rank taste, and a peculiar smell. By cultivation and blanching the stalks lose their acrid qualities and assume the mild sweetish aromatic taste peculiar to celery as a salad plant.

CELESTINE, the name of five popes.

CELESTINE I. was a Roman, and is supposed to have been a near relative of the Emperor Valentinian. Various portions of the liturgy are attributed to him, but without any certainty on the subject. He held the Council of Ephesus in which the Nestorians were condemned, in 431. He occupied the seat of St. Peter eight years five months and three days, and died on the 6th April 432.

CELESTINE II. was elected in 1143, governed the church only five months and thirteen days, died 9th March 1144, and was buried at the Lateran.

CELESTINE III., Giacinto Bobone Orsini, of that noble race, was elected Pope 30th March 1191, being then only a deacon, received priest's orders on the 13th of April, ruled the church six years, nine months, and nine days (though believed to have been ninety when elected), died 8th January 1198, and was buried at the Lateran.

CELESTINE IV., Godfrey Castiglioni of Milan, a nephew of Urban III., became a monk at Hautecombe in Savoy, there wrote a history of Scotland, and was elected Pope by seven cardinals only, in the midst of troubles caused by the vicinity and violence of the Emperor Frederick II., on the 22d September 1241. He occupied the throne only seventeen days, died, before consecration, on the 8th October 1241, and was buried at the Vatican.

CELESTINE V. was known before his election as Peter di Morone. Born in 1215, the son of a peasant in the Neapolitan district, named Angelario, he became a Benedictine monk at Faitoli in the diocese of Benevento when he was seventeen. He showed from the first an extraordinary disposition to asceticism and solitude, and in 1239 retired to a solitary cavern on the Mountain Morone, whence his name. Five years later he left this retreat, and betook himself, with two companions, to a similar cave on the Mountain of Majella in the Abruzzi, where he lived as strictly as was possible according to the example of St. John the Baptist. Terrible accounts are given of the severity of his penitential practices. While living in this manner he founded, in 1244, the order subsequently called after him Celestines. (See CELESTINES.) The cardinals assembled at Perugia after the death of Nicholas IV., and after long dissensions and difficulties agreed as a means of escaping from them to elect the hermit Pietro di Morone. When sent for he obstinately refused to accept the Papacy, and even, as Petrarch says, attempted flight till he was at length persuaded by a deputation of cardinals accompanied by the kings of Naples and Hungary. Elected 7th July 1294, he was crowned in the city of Aquila in the Abruzzi, 29th August. He issued two decrees, — one confirming that of Gregory X.,

which orders the shutting of the cardinals in conclave; the second declaring the right of any Pope to abdicate the Papacy, — a right he, at the end of five months and eight days, proceeded himself to exercise at Naples on the 13th December 1294. He did one other thing which may be noted, because it seems to be the only instance known to the church in which such a thing occurred. He empowered one Francis of Apt, a Franciscan friar, to confer priest's orders on Lodovico, son of Charles, king of Sicily, — a fact which seems to have escaped the notice of Bingham, who says that such a thing was never done. In the formal instrument of his renunciation he recites as the causes moving him to the step, "the desire for humility, for a purer life, for a stainless conscience, the deficiencies of his own physical strength, his ignorance, the perverseness of the people, his longing for the tranquillity of his former life;" and having divested himself of every outward symbol of dignity, he retired to his old solitude. He was not allowed to remain there, however. His successor, Boniface VIII., sent for him and finally, despite desperate attempts of the late Pope to escape, got him into his hands and imprisoned him in the castle of Fumone near Ferentino in Campagna, where, after languishing for ten months in that infected air, he died on the 19th May 1296.

CELESTINES, a branch of the great Benedictine monastic order. At the foundation of the new rule, they were called Hermits of St. Damiano, or Moronites (or Murronites), and did not assume the appellation of Celestines till after the election of their founder to the Papacy as Celestine V. The fame of the holy life and the austerities practiced by that saintly hermit (as noticed above) in his solitude on the Mountain of Majella, near Sulmona, attracted many visitors, several of whom were moved to remain and share his mode of life. They built, therefore, a small convent on the spot inhabited by the holy hermit, which very shortly became too small for the accommodation of those who thronged thither to share their life of privations. Peter of Morone, their founder, therefore built a number of small oratories in that neighborhood. This happened about the year 1254. A new religious community was thus formed, and Peter of Morone gave them a rule formed in accordance with his own practices. In 1264 the new institution was approved by Urban IV. But the founder, having heard that it was probable that Pope Gregory X., then holding a council at Lyons, would suppress all such new orders as had been founded since the Lateran Council, having commanded that such institutions should not be further multiplied, betook himself to Lyons, and there succeeded in persuading Gregory to approve his new order, constituting it a branch of the Benedictines, with a rule based on that of St. Benedict, but adding to it many additional severities and privations. Gregory further took it under the Papal protection, assured to it the possession of all property it might acquire, and endowed it with that great and constant, but most pernicious and fatal, object of the ambition of all monastic orders, exemption from the authority of the ordinary. Nothing else was needed to ensure the rapid spread of the new association; and Peter the hermit of Morone lived to see himself "Superior-General" over thirty-six monasteries and more than six hundred monks. Peter, however, cannot be accused of ambition or the lust of power when a monastic superior, any more than when he insisted on divesting himself of the Papacy, to which he was subsequently raised. As soon as he had seen his new order thus consolidated he gave up the government of it to a certain Robert, and retired once again to a still more remote solitude to give himself up more entirely to solitary penance and prayer. Shortly after-

wards, in a chapter of the order held in 1293, the original monastery of Majella being judged to be too desolate and exposed to too rigorous a climate, it was decided that the monastery which had been founded in Sulmona should be the headquarters of the order and the residence of the General-Superior, as it has continued to be to the present day. The next year Peter the hermit of Morone, having been, despite his reluctance, elected Pope by the name of Celestine V., the order he had founded took the name of Celestines. The hermit Pope found time in the few short months of his Papacy to confirm the rule of the order, which he had himself composed, and to confer on the society a variety of special graces and privileges. In the only creation of cardinals promoted by him, among the twelve raised to the purple, there were two monks of his order. He found time also to visit personally the great Benedictine monastery on Monte Cassino, where he succeeded in persuading the monks to accept his more rigorous rule. He sent fifty monks of his order to introduce it, who remained, however, for only a few months.

After the death of the founder the order was favored and privileged by Benedict XI., and rapidly spread through Italy, Germany, Flanders, and France, where they were received by Philip the Fair in 1300. Subsequently the French Celestines, with the consent of the Italian superiors of the order, and of Pope Martin V. in 1427, obtained the privilege of making new constitutions for themselves, which they did in the 17th century in a series of regulations accepted by the provincial chapter in 1667. At that time the French congregation of the order was composed of twenty-one monasteries, the head of which was that of Paris, and was governed by a Provincial with the authority of General. Paul V. was a notable benefactor of the order. But in consequence of later political changes and events the order has been dissolved.

CELIBACY is the condition of those who are living a single life. The word is derived from *celebs*, which means, not necessarily, as is very commonly supposed, a bachelor, but one who has no existing wife, whether he be a bachelor or a widower.

The lawgivers of various countries and ages have striven to discourage celibacy, as far as it was in the power of law to do so. The mention of Dionysius of Halicarnassus of an ancient law by which all persons of mature age were obliged to marry, may be cited. More authentic is the Roman law of the time of Augustus called *Papia Poppæa*, or *Julia Papia*, from some new sanctions and amendments under the consuls Papius and Poppæus.

Modern legislation has with increased wisdom shrunk from such direct attempts to coerce those subject to it. But various provisions have in many European countries been enacted or proposed with the view of favoring the prevalence of marriage. An endeavor to give a satisfactory account of the investigations of physiologists, as bearing on this subject would lead us too far afield into the discussion of topics which fall more conveniently and appropriately under other headings.

It is not true, as is often stated, that the official expositors of Romanist theology and ecclesiastical law maintain that a vow of perpetual celibacy was required as a condition of ordination in the earliest ages of the church. It is fully admitted by them that "although celibacy is preferable to matrimony, the divine law does not make it necessary for the reception of holy orders, or forbid either the ordination of married men or the marriage of those already in orders." In fact it would be impossible to maintain the reverse without denying the truth of many portions of ecclesiastical history,

which the church cannot afford to spare, as to the conduct and lives of many of the early bishops, confessors, and martyrs, and without running very serious risk of damaging the favorite claim of the church to uninterrupted apostolical succession.

The principal Papal decrees that have been issued by the popes on the subject of sacerdotal celibacy are the following. It is said that Calixtus I., who was elected in 221, renewed a constitution forbidding the marriage of priests. It is said, too, that Lucius I., elected in 255, re-enacted the same prohibition. We do not, however, reach any certainty on the subject till we come to the Council of Elvira, the first of those on matters of discipline the decrees of which are extant. It is doubtful whether this council was held in the year 300 or 313. The thirty-third and thirty-sixth canons of this council command bishops, priests, deacons, and subdeacons to live apart from their wives. The council further prohibited ecclesiastics from having any female in their houses save a sister or a daughter, and those only when virgins, who had consecrated their virginity to God. The ecclesiastic writers maintain that these constitutions were but the confirmation by authoritative sanction of the practice which had been immemorially observed, rather as an apostolic tradition than a positive command. From that time to the time of Gregory VII. (the great Hildebrand, elected in 1073), a series of popes issued decrees commanding bishops, priests, and deacons to observe celibacy. Gregory VII., in the council held at Rome in the year 1074, determined more decisively and vigorously that, according to the sacred canons and the decrees of his predecessors, no ecclesiastic could be a married man, that the sacrament of ordination should be conferred on none except those who professed perpetual celibacy, and that no wived priest should celebrate or even assist at the Mass.

Upon the whole it is clear that the pretention advanced by the Church of Rome to insist on the celibacy of its clergy was at first put forward tentatively and gradually, as a thing desirable and tending to higher perfection, rather than a thing absolutely necessary; that, like so much else in that church, it was an encroachment on Christian liberty, originating in a mystic idea of the greater purity of a state of celibacy, which was a natural product of the working of the human intellect in the earliest centuries of Christianity, and became fixed and consolidated into a rigid law, as the rulers of the church, and especially Gregory VII., came to perceive that it was a potent engine of ecclesiastical power. It is probable that Hildebrand, the nature of whose intellect and temper was such as eminently to qualify him for perceiving, appreciating at its true value, and utilizing the doctrine of the universal celibacy of the clergy, was the first ruler of the church who clearly saw the incalculably enormous power which this rule placed in the hands of the hierarchy as a body, yet more notably than it tended to increase that of each individual priest. To this and to this alone it has been and is due that a Catholic priest is the citizen of no country, and acknowledges, or at least feels no allegiance, unless perhaps a subordinate and secondary one, save to his church, and that to him his order is in the place of family and country; and the greatness, the power, the glory, and the supremacy of the church, constitute that for which the best minds among the priesthood labor and live. But while churchmen were becoming more and more alive to the vast importance of celibacy as a *sine qua non* of the priesthood, minds which were fitted to estimate that institution with a larger view to its ultimate results and consequences became at an early period aware of its veritable consequences.

But when the church stood at the diverging of the ways, fabled in the apologue, and at the Council of Trent decided once and forever which of the two paths open before her she should follow, whether that of progressive reformation and amelioration, or that of a *sint-ut-sunt-aut-non-sint* persistence in her old ways and policies, the abolition of the celibacy of the clergy was discussed among other proposed measures of reform, and more peremptorily rejected than almost any other suggestion brought forward. The church understood too well what was around her, and too little what was ahead of her; was too clear-sighted, yet too short-sighted; and determined to retain the terrible engine of her power, which makes of her a caste, with a gulf between her ministers and the rest of humanity.

CELL, CELL-THEORY. In the latter half of the seventeenth century, Malpighi and Leeuwenhoek on the Continent, and Hooke and Grew in England, commenced the application of the simple microscope to the examination of the minute structure of plants and animals; but, although their labors in this department of biology were continued by Swammerdam and others during the eighteenth century, the foundation of scientific histology was not laid until the appearance, in 1801, of the *Anatomie Generale* of Bichat. In this epoch-making work, the conception of the *tissue theory*, as it may be termed, is first stated. The invention of achromatic lenses (see **LENS, MICROSCOPE**), and their combination into the compound microscope, enabled anatomists to inquire into the composition of the tissues themselves with ever-increasing success. "Fibers" and "globules," "laminæ," "nuclei," and even "cells," were described, the latter with some distinctness among plants; but the first clear idea of their nature and relations was emitted by Johannes Müller, in 1835. The cellular nature of epidermis, and the presence of nuclei therein, were next ascertained, and the like discoveries were made for several other tissues. Robert Brown discovered the nucleus in plant-cells; and, in 1838, Schleiden proved that a nucleated cell is the only original component of a plant embryo, and that the development of all tissues might be referred to such cells. In the following year, Schwann published, at Berlin, his famous *Microscopic Investigations on the Accordance in the Structure and Growth of Plants and Animals* (trans. Sydenham Soc., 1847), in which the cell-theory was definitely constituted, the accordance asserted in the structure and development of the most different parts of plants and animals alike being their cellular composition and origin.

CELLINI, BENVENUTO (1500–1569), was born at Florence, where his family, originally landowners in the Val d'Ambra, had for three generations been settled. His father, Giovanni Cellini, was a musician, and artificer of musical instruments; he married Maria Lisabetta Granacci, and eighteen years elapsed before they had any progeny. The father designed Benvenuto for the same profession with himself, and endeavored to thwart his inclination for design and metal work. When he had reached the age of fifteen, his youthful predilection had become too strong to be resisted, and his father reluctantly gave consent to his becoming apprenticed to a goldsmith, Antonio di Sandro, named Marccone. He had already attracted some notice in his native place, when, being implicated in a fray with some of his companions, he was banished for six months to Siena. After visiting Bologna and Pisa, and after twice resettling for a while in Florence, he decamped to Rome. On his next return to Florence, his violent temper again embroiled him in a quarrel, which again compelled him to retreat in disguise to Rome. Here he produced a vase for the bishop of Salamanca, which

introduced him to the favorable notice of Pope Clement VII.,—likewise at a later date one of his celebrated works, the medallion of Leda and the Swan; he also reverted to music, practiced flute-playing, and was appointed one of the Pope's court-musicians. In the attack upon Rome by the Constable de Bourbon, which occurred immediately after, in 1527, the bravery and address of Cellini proved of signal service to the pontiff; if we may believe his own accounts, his was the very hand which shot the Bourbon dead, and he afterwards wounded the Prince of Orange. His exploits paved the way for a reconciliation with the Florentine magistrates, and his return shortly after to his native place. Here he assiduously devoted himself to the execution of medals, the most famous of which (executed a short while later) are Hercules and the Nemean Lion, and Atlas supporting the Sphere. From Florence he went to the court of the duke of Mantua, and thence again to Florence and to Rome. Here he avenged a brother's death by slaying the slayer; and shortly afterwards he had to flee to Naples to shelter himself from the consequences of an affray with a notary, Ser Benedetto, whom he wounded. Through the influence of several of the cardinals he obtained a pardon; and on the elevation of Paul III. to the pontifical throne he was reinstated in his former position of favor, notwithstanding a fresh homicide of a goldsmith which he had committed in the interregnum. Once more the plots of Pier Luigi, a natural son of Paul III., led to his retreat from Rome to Florence and Venice, and once more he was restored with greater honor than before. On returning from a visit to the court of Francis I., being now aged thirty-seven, he was imprisoned on a charge (apparently false) of having embezzled during the war the gems of the pontifical tiara; he remained some while confined in the castle of Sant' Angelo, escaped, was recaptured, and was in daily expectation of death on the scaffold. At last, however, he was released at the intercession of Pier Luigi's wife, and of the cardinal of Ferrara, to whom he presented a splendid cup. For a while after this he wrought at the court of Francis I. at Fontainebleau and in Paris; but the intrigues of the king's favorites, whom he would not stoop to conciliate and could not venture to silence by the sword, as he had silenced his enemies at Rome, led him, after about five years of laborious and sumptuous work, and of continually recurring jealousies and violence, to retire in disgust to Florence, where he employed his time in works of art, and exasperated his temper in rivalries with the uneasy-natured sculptor Baccio Bandinelli. Here, as well as in a previous instance in Paris, he was accused of gross immorality; in his autobiography he rather repels than denies the charge, but he certainly repels it with demonstrative and grotesque vivacity. During the war with Siena, Cellini was appointed to strengthen the defences of his native city, and he continued to gain the admiration of his fellow-citizens by the magnificent works which he produced. He died in Florence on 13th December 1569, and was buried with great pomp in the church of the Annunziata. Besides the works in gold and silver which have been alluded to, Cellini executed several pieces of sculpture on a grander scale. The most distinguished of these is the bronze groupe of Perseus holding the head of Medusa placed in front of the old Ducal Palace at Florence, a work full of the fire of genius and the grandeur of a terrible beauty, one of the most typical and unforgettable monuments of the Italian Renaissance. The casting of this great work gave Cellini the utmost trouble and anxiety; its completion was hailed with rapturous homage from all parts of Italy. Not less characteristic of its splendidly gifted and barbarically untamable author are the autobio-

graphical memoirs which he composed, beginning them in Florence in 1558,—a production of the utmost energy, directness, and racy animation, setting forth one of the most singular careers in all the annals of fine art.

CELLULOID, a hard, perfectly homogeneous, compact substance, closely resembling ivory, is produced by the action of strong nitric acid upon cellulose. Cotton, wool, linen, paper, or other substance largely consisting of cellulose, is immersed in nitric acid; and the result is a mixture of two nitro-celluloses. This product, of which collodion is a solution in alcohol, may be dissolved under pressure at moderately high temperatures in camphor, when celluloid is obtained. Celluloid becomes plastic at 125°. If coloring matter be mixed with the celluloid during manufacture, artificial coral, amber, malachite, etc., result. Celluloid is an excellent material for making backs of brushes, handles of knives or umbrellas, combs, and the like.

CELLULOSE is the substance secreted by the living protoplasm of a vegetable cell to form its investing membrane or cell-wall. Pure cellulose consists of carbon, hydrogen, and oxygen, in the proportions of $C_6H_{10}O_5$ (more probably $C_{18}H_{30}O_{15}$). (See Sachs' *Prantl's Botany*.)

CELSIUS, ANDERS (1701-44), a Swedish astronomer, was born at Upsala in 1701. After traveling in Germany, England, Italy, and France, he took part in the famous expedition which was undertaken in 1736 by Maupertuis, Clairaut, Camus, and others, for the purpose of measuring a degree of the meridian in Lapland. He became member of the academies of Stockholm and Berlin, and of the Royal Society of London, and was appointed secretary of the Royal Society of Upsala. He died in his native town in 1744, leaving several works on astronomical subjects, including *Observations on the Measurement of the Earth* (1738), *A new method of Measuring the Distance of the Sun from the Earth* (1730), and a paper in which he tried to show that the waters of the ocean are decreasing in volume.

CELSUS is the first writer against Christianity of whose objections we have any record. His history is involved in complete uncertainty. Our knowledge of his treatise is derived from Origen's works written against it. We should have expected some information from the Alexandrian in regard to the writer whose book he refutes. But when we examine Origen's statements carefully, we are led to the conclusion that Origen knew nothing about him. Celsus' treatise had been sent to him by Ambrosius with the request that he should grapple with its arguments. Origen had not heard before of the work or of the author. He thought that Christianity did not require a defense, but to please his friend, and with the hope of benefiting those who were not Christians, he set about the task assigned.

From passages in the refutation the inference may be drawn that Origen was very much in the dark as to who Celsus was and when he lived. The indications in the work itself are not much more satisfactory.

In the *True Discourse*, Celsus shows great philosophical and critical powers. He takes note of almost every objection which has been brought against Christianity, and his position is substantially that which is assumed by the *True Discourse*, divided into two parts. In the first he does not speak in his own person, but introduces a Jew who discusses from the Jewish point of view the credibility of the statements made by Christians in reference to the life of Jesus. There was considerable advantage in this mode of procedure. Celsus himself did not believe in the supernatural. The only possibility of the existence of such a person as the Christian Jesus that he could conceive depended upon his being dæmonic, but Jesus showed nothing of that majesty,

that grandeur, that energy of will in worldly affairs which he deemed essential to the dæmon. He therefore rejected his pretensions entirely as inconsistent with his philosophy; but he believed that even on the basis of a philosophy which permitted the supernatural the claims of Jesus must be rejected. And so his arguments are made to come from a Jew. The Jew rejects the miraculous birth of Jesus. Mary was divorced from her husband, and wandering about fell in with a Roman soldier, Panthera, who was the father of Jesus. Jesus being needy went down to Egypt and there learned all the tricks by which he could work apparent miracles, and on the strength of this knowledge he claimed to be God when he returned to Judea. But who could believe the statements made in regard to him,—who heard the voice at his baptism? None but himself and a companion who shared his dream or rather his imposture. The miracles ascribed to him are absurd. Any one could see such miracles by paying a few obols to any Egyptian juggler. If Jesus was God, would he have chosen such wicked and worthless men as his apostles? If he knew that Judas would betray him, why did he make him his companion? But the story of the resurrection especially seemed absurd. He was condemned publicly before the eyes of all. No one could doubt this. If he rose again, why did he not make his justification as public? Would he not have confronted his judge, his accusers, the general public, and given indubitable evidence that he was not a malefactor? And who saw him after he rose again? A half insane woman and one or two followers who were in the very humor to trust to dreams or to an excited fancy. In this way the Jew discusses many of the statements made in the gospels, and comes to the conclusion that Jesus was an ordinary man.

In the second part Celsus tests the beliefs of the Christians by his philosophical principles. He then shows that the Greeks had all that was true in Christianity, but in a nobler and better form, and he ends with a practical application, urging Christians to give up their separatist tendency, to worship the dæmons, and to join in all civil and military duties imposed on citizens by the state. Before dealing with the principles of the Christians he draws attention to the false position which they occupy. They are, he thinks, essentially rebellious. They wish to separate themselves from the rest of mankind. The Jews show this tendency, but they are so far to be excused in that they adhere to their national beliefs. These beliefs indeed are often silly and puerile, and perversions of what is wiser and better in Greek poets and philosophers. But the Christians belong to no nationality, and separate themselves from the ordinary beliefs without any good cause. They object to the divinity of the Dioscuri, Hercules, and others, in regard to whom the Greeks believe that they became gods from being men. And yet they worship a man who was a prisoner and died. This worship is on a level with that of Zamolxis by the Getæ, of Mopsus by the Cilicians, and of others whom he names. It is unreasonable. Accordingly the Christians do not invite the wise or the good. It is ignorant slaves, women, and children whom they try to influence, not publicly but in corners and private places. And their divisive tendencies are shown in the number of the sects which exist among them.

After this introduction Celsus proceeds with his philosophical argument. God is good and beautiful and blessed. He therefore cannot change. For if he were to change, it could only be for the worse. Therefore God cannot come down to men. He cannot assume a mortal body. He cannot do it in reality, for that would be contrary to his nature; he cannot do it

in appearance, for that would be to deceive, and God cannot deceive. Indeed the idea is absurd. What advantage could be gained by his coming? Does he not know all things? Has he not power to do all things without assuming a body? Is he not able as God to do everything that he could do as incarnated God? And no real advantage is got for men; for they do not know God better by seeing him in bodily form. God must be seen by the soul, and men are deceived if they imagine they know Him better by seeing Him in a corruptible body than when they see Him with the pure eye of the soul. Indeed Christianity is in this respect marked by a gross anthropomorphism. Nor can the purpose which Christians assign for this incarnation be regarded as true. The nature of the whole is always one and the same. There is always the same amount of evil in the world. There is nothing evil in God. The evil is in matter. But God is continually making the evil serve for the good of the whole. If this is the case, then, it is absurd to suppose that God would be especially interested in a few of the human race. He works always for the whole. And the Christian notion is peculiarly absurd. Did God at that particular time waken from sleep and resolve to rescue a few from sin? Was He indifferent to all mankind before, to all the nations of the earth? And is He to continue to show the same special favor only for a select number? Not only are the Christians wrong in this, but they are wrong in supposing that the world was made for man. Again it is the whole that is cared for. And we can see signs in nature that animals are equal if not superior to man in many points. If he hunts the deer, the lion hunts him and feeds on him. Bees have cities and rulers. Some animals speak to each other. Some can foretell the future. Some are religious. In fact neither for animals nor man was the universe made, but that the world as God's work might be perfect in every part.

In exhibiting the superiority of the Greek doctrines over the Christian, Celsus points to the circumstance that the Greeks appeal to reason, the Christians cry out "Believe, believe." The doctrine of the Son of God, he thinks, was borrowed from Plato. The Devil owed his origin to a distortion of a Greek opinion. He compares the prophecies of the Greeks with those of the Christians, and he contrasts Greek and Christian doctrines of a future state, and speaks of the resurrection as a ridiculous belief.

CELT (Lat. *celtis* (?), a chisel), the name by which certain weapons or implements of the early inhabitants of Western Europe are known among archæologists. Celts are either of stone or of bronze. Stone celts vary in length from about one inch to twenty-two inches; but the most common size is from six to eight inches in length, and from two to three and one-half inches in breadth. They are made of almost every kind of stone, and show considerable diversity of shape, almost all, however, having more or less resemblance to the mussel-shell. The ruder celts are generally of slate, shale, schist, or grit; the finer, of flint, porphyry, greenstone, syenite, or agate. Many of the finer celts are beautifully shaped and highly polished. Bronze celts vary in length from about one inch to eight to ten inches, the most common length being about six inches. They are sometimes ornamented with rudely-incised lines or circles, and have occasionally been found wrapped up in linen, or inclosed in bronze cases or sheaths. They show much greater diversity of shape than the stone celt. As many as four classes have been distinguished by archæologists.

CELTIBERIA, the country of the Celtiberi, was an extensive inland division of Spain, lying between the basin of the Iberus or Ebro and the sources of the Ta-

gus, Douro, and Guadiana, and comprehending the greater portion of the modern provinces of Cuenca and Soria, the south-west half of Aragon, and part of Burgos. By the Romans the name was employed almost as synonymous with Hispania Citerior. It was a hilly and barren region, intersected with valleys of great fertility. Of the chief cities the most famous were Segobriga, the capital; Bilbilis, the birth-place of the poet Martial; and Numantia, besieged ten years by the Romans, and taken and destroyed by Scipio Africanus, 133 B.C. The Celtiberians, as their name imports, were considered to have arisen from the inter-marriage of Iberians with the Celts that, having crossed the Pyrenees from Gaul, subdued and settled amongst them. The new race thus formed were a brave and powerful people, whose warlike qualities, improved by conflicts with their neighbors and the Carthaginians, rendered them formidable opponents of the Romans, whom they not unfrequently defeated. After their overthrow by Scipio, and their consequent alliance with their conquerors, they frequently revolted; but, on the assassination of their leader Sertorius in 72 B.C., they were subdued by Pompey, and from that time Celtiberia submitted quietly to Roman influence.

CELTIC LITERATURE. The Greeks gave the collective name *Keltai* to a Western people, the name *Keltike* to the land which they inhabited. The region to which the latter term was applied varied according to the more or less accurate knowledge of each writer who used the term. The use of the word *Keltai* was equally vague and variable; and this was due as much to the movements of peoples which took place some centuries before the Christian era as to the want of knowledge of the early Greek writers. One of the displacements of tribes due to those movements has immediate connection with our present subject, the migration of some of the *Keltai* by the valley of the Danube and Northern Greece into Asia Minor; for in the names *Galatai* given to the people, and *Galatia* given to the land wherein they settled, we have forms which connect the Greek *Keltai* and *Keltike* with the Roman *Galli* and *Gallia*, and both, perhaps, with *Góidil*, *Gaeidil*, or *Gaedhil*, the name of one branch of the descendants of the *Keltai*, or, to use the modern form of the word, Celts. If *Góidil*, or, in the modern Scottish form, *Gael*, be radically connected with *Keltai*, *Galatai*, and *Galli*, these names would represent that by which the original nation, or one of its principal tribes, called itself. We do not know the collective name by which the Germans designated their neighbors.

When the Romans became first acquainted with the Celts there were two Gauls,—Cisalpine Gaul or Northern Italy, and Transalpine or Greater Gaul, which included not only France but also Belgium, all that part of Germany west of the Rhine, and Western Switzerland.

The determination of the limits of the Celtic ground is based chiefly on linguistic evidence. Unfortunately, as regards the Continental part, our materials are scant, and hence a good deal of room is left for the imagination. Thus it has been much discussed whether the language spoken in every part of ancient Gaul was the same. Some have asserted that the Belgians were Germans, and therefore spoke a Teutonic tongue, that even the Celtic dialect spoken north of the Loire differed considerably from that spoken south of that river in Aquitaine. This opinion was based upon a well-known passage in Cæsar's *History of the Gallic War*, in which he states that Gaul was divided into three parts which differed among themselves in language, institutions, and laws. This may mean either that

three distinct languages were spoken, or if but one language, that there were three well-marked dialects. M. Roget de Belloguet has shown from a careful investigation of all ancient authorities, and an analysis of nearly 400 Gaulish words gathered from ancient authors and inscriptions, that the differences in question were dialectic, and that, save, perhaps, in those parts occupied by a Ligurian or Basque people, the same language was spoken in all Gaul.

Community of language does not, however, necessarily imply community of race. People having no kinship may speak the same language, while others nearly akin may speak widely different languages. This has been found to have been the case in Gaul as elsewhere. One language was spoken by two races which gradually fused into one people—a northern, fair-haired, blue-eyed race, of tall stature, lymphatic temperament, and elongated heads, and a southern race, shorter in stature and dry and nervous in temperament, having brown or black hair and eyes and round heads. The free or dominant class of Gauls belonged to the former race, which was evidently an intrusive one. The inhabitants of the British Islands seem to have been composed of the same two races, and to have spoken the same language as those of Gaul.

Causes of phonetic change like those which produced the parallel branches of the Teutonic stem (the Germanic and Scandinavian tongues) and of the Windic stem (the Slavonic and Lithuanic tongues) must have existed at an early period in the Celtic language, for the original stem has produced two branches in the British Islands which are wider apart than those of the Teutonic stem, less widely separated than the two branches of the Windic stem. These branches we shall call the Irish and British branches. Each of these branches has again produced three dialects. The Irish or Goidelic dialects are—the Irish proper, the Scottish Gaelic, and the Manx, or dialect of the Irish spoken in the Isle of Man. The British dialects are—the Kymreag or Welsh, the Cornish, and the Armoric, or language of Brittany. The Cornish is extinct, having died out about the middle of the last century. We have included Armoric among the British dialects on the ground that whatever may be its relation to old Gaulish it was intimately connected during the Middle Ages with the Cornish, if it be not a direct descendant of the language spoken by the southern Britons who emigrated to Brittany during the early Saxon wars.

As regards the dialects of each branch, the Irish ones differ less from each other than do the British dialects. Irish proper and Scottish Gaelic are practically the same language, and do not differ greatly more than the dialect of English spoken in the Scotch Lowlands does from common English. Such differences as do exist indicate the modern origin of the Scottish Gaelic.

Of the British dialects Cornish and Armoric resemble each other more than either of them does Welsh. This resemblance is, however, not as great as that of the Irish and Scottish Gaelic, but perhaps as close as that between Spanish and Portuguese, especially if the later borrowings from English and French be excluded. As to the words borrowed by the Cornish from French, which are much more numerous than those taken from English, it is interesting in connection with the history of romance to note that many are borrowed directly from Provençal. The difference between Welsh and Cornish and Armoric is considerable; Mr. Edwin Norris thought it to be as great as that between French and Spanish.

The question naturally suggests itself here, when did the original Celtic stem divide into the two branches described? and again, when did each of those branches produce their dialects? The late Mr. Edwin Norris was of opinion that the separation took place after the

arrival of the primitive stock in the British Islands. This opinion appears to be in entire conformity with all the facts of the case, ethnological, linguistic, and historical. We have already indicated that the Scottish Gaelic is an essentially modern dialect, which has an existence of only a few centuries. It is probable that pure Irish was spoken in the Isle of Man in the 6th and 7th centuries, that is, Irish exhibiting no greater dialectic variety than existed at the same period between any two provinces of Ireland itself, so that the Manx dialect must have grown up since then. Of the two branches the Irish is the most archaic, that is, it has preserved more of the characteristics of the original stem. Among the British dialects the most archaic, that is, the one which best represents the British, is Cornish, which is the descendant of the speech of the un-Romanized Britons of England. This was also the opinion of Mr. Norris, who held that the older the Welsh the more closely would it approximate to Cornish. It is indeed probable that the Welsh dialect originated in the 5th and 6th centuries, when the conquests of the Saxons began to isolate Wales from the other British-speaking people. The separation of Cornish and Armoric is still more recent, a fact which supports the story of the emigration of Britons to Armorica, and of long-continued intercourse during the early Middle Ages.

Mediaeval Irish and Welsh manuscripts contain an extensive body of legendary ethnology, which in the case of the Irish legends has been even fitted with a complete chronology. Setting aside the more fabulous parts of the Irish legends which refer to colonists who arrived a short time before and after the deluge, we find four successive colonies mentioned in the following order:—*Nemedians*, *Firbolgs*, *Tuatha Dé Danann*, and *Milesians*. The *Nemedians* are said to have occupied the country during only two hundred years, when the greater part of them went away in three separate bodies, owing to the harassing attacks made upon them, and their final overthrow, by a people who appear in Irish legends as sea-rovers, called Fomorians. One body took refuge in Britain, another went to Thrace, and the third into the north of Europe. The Thracian party became the ancestors of the second colonizing race, the *Firbolgs*. The *Nemedians* who went to the north of Europe appear afterwards as the *Tuatha Dé Danann*; those who went into Britain became the Britons. According to this legend three of the early tribes which peopled Ireland were of the same race with the Britons. The fourth and latest of the Irish races, the *Milesians*, or followers of *Miled*, are also connected with the others in the genealogies to be found in Irish manuscripts, but the relationship is much more distant than that which is represented to have existed between the other races. All Irish accounts of the early races inhabiting Ireland agree in bringing *Miled* from the north of Spain; but in the early times when the Irish ethnic stories received their present shape, the majority of people, not alone in Ireland, but everywhere, had very imperfect notions of geography, and often applied the few geographical names which had reached their ears by pure hazard, and generally without having more than the vaguest notions of the places they referred to. A perusal of Irish, and, we may add, of Welsh poems and tales will bear out what is here stated. Spain in the Milesian story probably means no more than that the Milesians, whoever they were, came from a distance, and not from neighboring countries with which the early Irish had intercourse. Ethnic traditions as a rule do not add much to our knowledge, but it is always dangerous to ignore them altogether because they must necessarily contain some truth. Of all the Irish traditions of this class those only seem to possess real importance which relate to the

mysterious people called the *Tuatha Dé Danann*. This name appears to mean the tribes of *Dé* and *Ana*; and as *Dé* is God, and *Ana* is called the mother of the Irish gods, these supposed invading tribes are only the deities in a system of mythology which has yet to be unravelled.

All these deities descend from a common ancestor, the *All-dai* or All-God, and appear to form to lines — the *Aes Trebair* and the *Aes Síde*, probably analagous to the Teutonic *Vanir* and *Æsir*. The close resemblance between the Irish and Norse words *Aes* and *Æsir* can hardly be accidental. The former signifies a people; the latter is connected with the Norse *ans* and the Anglo-Saxon *ós*, God, which occurs in many men's names. The *Síd* was the heavenly fort of the *Aes Síde*, as *Asgard* was of the *Æsir*. The *Mna Sidhe*, women of the *Sidh*, or in the singular *Bean Sidhe* (pronounced *Banshee*) of modern fairy mythology, represent the goddesses of the *Aes Síde*. As in other mythologies, the same deity was endowed with different attributes and received different appellatives. The mediæval genealogists who looked upon the *Tuatha Dé Danann* as a real human race, thought it necessary to provide a place in the genealogies which they invented for every different name, and so added confusion to what was before obscure enough.

It appears that all the Celtic inhabitants of the British Islands consisted of two branches, which though originally the same people had branched off from each other in language and in other ways, producing the two classes of Celtic dialects, the Goidelic or Irish and the British. But while we agree with M. de Belloguet that the Gauls were one in race and language, and, moreover, believe that the people who inhabited the British Islands were the same as those of Gaul, and that the divergence which we now observe between the Goidelic and British dialects first took place after their arrival, there seems no reason to doubt that the Celtic population flowed into these islands in two streams, one from the neighboring Gaul, and one from some country east of Gaul by way of the North Sea,—the *Coretani*, the *Gwyddel Ffichti* from about the Forth, the Irish *Cruitne*, and the Scots forming part of the latter stream, and, if our conjecture be correct, the latest comers, a view in harmony with ethnic traditions, but differing from the ordinary opinion that the so-called *Cymry* came along after the *Góidil*, and drove them westward, they themselves being in turn pushed in the same direction by the incoming Saxons.

It would be interesting to pursue the subject of the ethnology of the early races of the British Islands through the conflicts and displacements of races which took place between the landing of Cæsar and the final retirement of the Romans in the 5th century. But as this is not absolutely necessary for the illustration of a literature which only dates from the latter event, we shall content ourselves with giving a sketch of the ethnic distribution of the people of Britain resulting from the conflicts and displacements referred to as it existed in the beginning of the 6th century, when we are on sure ground in the history and literature of Ireland at least. Without such a preliminary sketch much that we shall have to say of great importance in the history of Celtic literature would be unintelligible.

In the end of the 5th and beginning of the 6th centuries external invasions had ceased, and the different races had gathered into separate states, and commenced a struggle for mastery. In England the Saxons (using that term as a collective name for Saxons proper, Frisians, Angles, and Jutes) held possession of the southern and eastern coast from Dorsetshire to the Humber — the Angles chiefly occupying what is now Suffolk,

Norfolk, and Lincoln — and were gradually making themselves masters of Central England towards the Severn, and were even penetrating northwards between the vale of the Ouse and the Pennine Chain, into what is now the West Riding of Yorkshire. With the exception, perhaps, of the immediate neighborhood of the south-eastern coast, where the continuous arrival of fresh bands of Saxons had driven away the British inhabitants, and of the district about the Humber where in like manner the fresh bands of Angles continually coming must have done the same, we are not to assume, as is usually done, that the former British inhabitants, called by the Welsh *Lleogrwys* or Loegrians, had all been exterminated, or driven away. On the contrary as the Saxons advanced inwards and the external invasion practically ceased, an increasing proportion of Britons must have been left. The new comers merely dispossessed the British ruling families, as the Norsemen did in Normandy, and as happened afterwards in Ireland, and left the bulk of the peasants. This was unquestionably the case in Central and Western England, and in Deira and Bernicia, the present counties of York, Northumberland, Durham, and the eastern Lowlands of Scotland. Cornwall and Devon were independent British kingdoms. What the Saxons had done on the southern and eastern coast the Irish did on the west. We cannot enter here into the question of when the Irish occupation of Western England commenced, or how long it lasted; there is no doubt, however, now that in the 5th century they occupied a considerable part of Gwynned, and Demetia, or the north and west coast of Wales. But while the Saxons were gradually displacing the British rule in the east, the Britons were gradually dispossessing the Irish in the west. The leaders of these Britons were the descendants of a certain *Cunedda*, reputed to have been a *Gwyddel* or Pict of the east of Scotland. Another *Gwyddel*, but probably one from Ireland, who like *Cunedda* was said to have married a British wife, *Brychan*, has given his name to Brecon or Brecknockshire. *Brychan* may, however, have been only the eponymous ancestor of the Goidelic families of Brecon.

The west of Britain from the Dee to the Clyde, with the exception of Galloway, was occupied by independent British tribes, apparently confederated for purposes of war. On the eastern side between the Humber and the Tyne was *Dyser* or Deira, also British at this period; and north of Deira, was *Bryneich* or Bernicia, which extended to the Forth. These two states probably formed in the beginning of the 6th century part of a confederation of Cumbrian states. But in the course of that century they seem to have been gradually converted into Anglian states without any serious displacement of population, or even of ruling families. On the shore of the Firth of Forth was a district called in Welsh *Guotodin*, the eastern point of which about the Pentland Hills was called *Manau Guotodin*, and was occupied by a tribe of Goidelic or Irish Picts, who, there is reason to believe, had also settlements in other parts of *Bryneich* along the east coast. It was from this tribe that *Cunedda*, if, as is probable, he was not an eponymous ancestor, had sprung. The remainder of *Guotodin*, between the Lammermoor Hills and the sea, seems to have been also at least partially occupied by another foreign people, most probably Frisians. On the western side, in what is now Argyllshire, north of the Clyde, a settlement of Scots, who had gradually leaked in there from the opposite coast of Ireland, had been formed, and had become organized into a distinct state which was ultimately destined to absorb the whole of Scotland, and give it its present name. The remainder of the country north of the Forth and Clyde was occupied by

the Picts, properly so called, a Goidelic people closely akin to, indeed almost identical with, the Irish. In Galloway was another branch of Picts, called *Gwydde' Efichti* by the Welsh, that is, Goidelic or Irish Picts, part of the *Cruitne* who leaked over from Ireland like the Scots.

In the beginning of the 6th century the Romanized Britons were giving way everywhere before the Teutonic tribes, and the only independent territory which they appear to have held comprised — (1) The Damnonian kingdom of Devon and Cornwall; (2) the part of Eastern Wales now forming Montgomeryshire and Radnorshire, which later formed the principality or lordship of *Porwys*, and perhaps even yet all the land to the Severn, that is, Herefordshire and Shropshire; (3) Cumbria, that is, all the land from the Ribble to the Solway west of the Pennine chain, and all the Lowlands of Scotland to the Roman Wall, save Galloway, and *Guotodin*, or Linlithgow (including part of Stirlingshire), Edinburgh, and Haddingtonshire; (4) *Bryneich*, Bernicia, that is, Berwickshire, Durham, and Northumberland; (5) *Dyfr*, or Deira, that is, Yorkshire. The ancient dioceses of Scotland, even as they existed in the 13th century, seem to mark out very well the ethnic condition of the Lowlands in the early part of the 6th century. The diocese of Galloway included the territory of the Irish Picts; the diocese of Lothian, which had three rural deaneries — (1) Linlithgow, or *Manau Guotodin* (comprising the shire of that name, part of Stirlingshire and the most of Edinburgh), occupied by the *Brithwyr*, a mixed race of Picts and Britons, according to Mr. Skene; (2) Haddington and the remainder of Edinburgh, that is, *Guotodin*, in which, as we have said, there was an early settlement of Frisians, or Angles; and (3) Merse, that is, Berwick. The continued existence of a Goidelic or Pictish population on the south side of the Firth or Forth, even in Berwickshire, down to as late as the 8th century at least, seems to be shown by the existence there of churches belonging to the ancient diocese of Dunkeld. In the 13th century they formed a separate deanery of that diocese, which appears to have corresponded with the Goidelic population of *Guotodin*. *Prydain*, the Cymric or true British country of the Lowlands, was consequently coterminous with the diocese of Glasgow, comprising the five rural deaneries of Glasgow proper — Rutherglen, Lennox, Lanark, Kyle and Cunningham, and Carrick; and the four deaneries of the archdeaconry of Teviotsdale, — Teviotsdale, Peebles, Nithsdale, and Annandale. This was the region called *y Gogledd*, though it is probable that this term was applied to the whole of the independent British territory, that is, Cumbria as well as *Prydain* proper; but whatever was its extent, *y Gogledd* was the cradle of the language and literature of Wales. It was the country of its prehistoric poets Aneurin and Llywarch Hên, and of the seer Merlin, whose fame was so great in the Middle Ages, and who is also reckoned among the early poets of the Welsh.

To complete this ethnic picture of Britain at the dawn of Celtic literature it would be necessary to give a sketch of the political and social state of the various Celtic tribes, so far as we could directly or by induction ascertain it. But as the articles BREHON LAW and CLANS give perhaps enough of this kind of information for the purpose we have in view, we refer the readers to those articles.

In the early stages of tribal organization among the Aryans and other races, the chief was priest as well as king. But the Celts appear to have already passed into a higher political stage before they came within the light of history, and to have established a distinct priesthood known to us as that of the Druids. Greek and

Roman writers give us very little information on this subject, and the early Welsh records and poetry none at all. Modern Welsh writers have, however, made up for this want in their genuine literature by inventing an elaborate Druidical system of religion and philosophy, which, they pretend, survived the introduction of Christianity, and was secretly upheld by the Welsh bards in the Middle Ages. This neo-Druidic imposture has found numerous adherents, and has been supported with a good deal of misspent learning by several persons of considerable talent. It would be a waste of time to say anything further on the subject here. In Irish poems and tales Druids, and other organized learned classes, are frequently mentioned. From an analysis of these, and aided by whatever light the classical writers throw on the Druidism of Gaul and Britain, we may make the following induction as to their position and organization in Ireland, where they cannot have been very different from what they were in other Celtic countries.

There are no definite accounts of the religious rites practised by the pagan Irish, but there are several allusions, which, though vague, plainly show that such rites existed, and that it was one of the functions of the Druids to perform them. The Druids also invoked the divinities in favor of their friends and against their enemies, and for this purpose they made incantations upon a mound or elevated ground near the field of battle. They determined, by auguries from the heavenly bodies, clouds, wind, smoke, the flight of birds, and other phenomena, the propitious and unpropitious times for fighting a battle, or doing any other important action. They announced the *Gaesa* or things which it would be unlucky for a chief or a tribe to do, foretold future events, practised incantations of various kinds, kept events in remembrance, and were, in a word, the depositaries of such knowledge as was possessed in Ireland at the time. Many of these functions belong equally to the persons usually called poets, and among the qualifications of the higher grade of the latter was a knowledge of certain kinds of incantation, some, of which involved many pagan rites, the practice of which we find distinctly ascribed to Druids. That the latter were therefore only a higher degree of the order of poets seems certain. As such they naturally performed or superintended all the higher pagan rites, and hence the whole order, of which they were the highest representatives, were called Druids. After the introduction of Christianity the hieratic functions of the Druids ceased, and the term Druid, which had been the special appellation of the poets who performed those functions, gradually fell into desuetude. But the order of which they were the highest exponents did not disappear as it did in Gaul; there its lay functions were swept away by Roman law, whereas in Ireland they acquired new vigor. In pagan times the poets enjoyed great power and many privileges, both of which they are said to have abused to such an extent that it was proposed to banish them altogether out of Ireland. Through the intercession of the mythical king of Ulster, *Conchobar Mac Nessa*, this, we are told, was not done; their number was, however, diminished, and their power and privileges curtailed. Among other changes said to have been then effected was that of depriving the poets of the functions of judge, which they had hitherto performed. This legend indicates the existence at some period immediately preceding the introduction of Christianity of a struggle between the lay and the spiritual power, in which the former were to some extent successful. The struggle continued even into Christian times, for in the 6th century it was again proposed to banish them, but on this occasion they were protected

by St. Columcille, not, however, without a further diminution of their number and loss of power.

The organization of the learned classes, as we find it described in Irish manuscripts, is no doubt to be referred to the *Dal* or parliament holden at Druimceta about the year 575, at which were present the king of the Dalriadic or Scotie kingdom, the paramount king of Ireland, and many sub-reguli, and prominent above all St. Columcille. According to this organization there were three grades or orders,—the *Gradh Ecna*, the *Gradh Fene*, and the *Gradh Fili*. *Ecna*, wisdom, meant general as distinguished from special professional knowledge. A graduate of *Ecna* was called a *Sai*, sage, but there appear to have been several degrees of the title, the highest of which was the *Ollamh Sai*, sometimes called also the *Rosai*, or very sage, or *Sai leitre*, lettered sage. *Ollamh* (pron. *Ollave*), we may remark, was the title of the highest degree in any profession. An *Ollamh Sai* had the rank and was entitled to the retinue of a *Rig Tuatha*, or tribe king. All questions between the different tribes, the interpretation of the laws, the succession to chieftainships, and similar questions were decided by them. They were the genealogists or historians of the chiefs or kings. In pagan times the *Gradh Ecna*, which was only a branch of the order, call it which we will, of Druids or poets, was probably the highest, judging by the dignity and privilege of its *Ollamh*, and consequently the one whose members were specially called Druids. If this view be correct, it was to this branch that the functions of judge originally belonged. When the right of judgment passed from the Druids into the hands of the *Rig*, or chief, the latter no doubt acted as judge himself, or appointed some one to fill his place. This judge was called a *Breitheam*, or as he is called from the pronunciation of the modern form of the word, a Brehon, and was always in early times a *Sai*, for *Fenechas*, or law, formed part of the knowledge comprised under the term *Ecna*, a fact which strongly supports the view above expressed, that the *Sai* was the successor of the Druid. In time the practice of law grew into a distinct profession, and every *Breitheam* of the higher class, that is every one who was a *Sai*, kept a kind of law school. Thus arose the *Gradh Fene*, or lawyers. One of the causes which no doubt helped to separate the study of *Fenechas*, or law, from the general study of *Ecna*, or wisdom, was the rise of schools in connection with religious establishments.

The class of persons whom we have above designated as poets were called *Fili* in Irish, and their art *Filidecht*. The latter is usually translated poetry, but it was rather vaticination in which they used verse. The *Fili* truly represents the *Ὀυάταις*, or vates, who formed one of the orders of Druids, mentioned by Strabo. Some of the forms of incantation practiced by the *Fili* are described in Irish manuscripts, and, as we have stated above, are attributed to the Druid as well as to the *Fili*. Those which involved pagan rites, and which were consequently forbidden by St. Patrick, fell into desuetude with the name Druid; but simple incantations by rhymes continued to be practiced in Christian times. One of these, the *Glam Dichinn*, or an incantation of satirical verses accompanied by certain ceremonies, which was believed to be capable of raising blisters on the face, was much used, and supplies, perhaps, one reason of the great sensitiveness of Celts to satire. The *Fili* appears to have been distinguished in early times by some kind of tonsure, the exact nature of which we do not understand. Perhaps it was the same as that afterwards used by the Christian priests, which was one of the causes of difference between the early Irish Church and the Roman Church. It is at all events worthy of

remark that the Irish priests were reproached with having the tonsure of Simon Magus, who in those times was the representative of all magicians or others who practiced necromancy or vaticination. There were several degrees of the order of *Fili*, the highest being the *Ollamh Fili*, as we have already pointed out. A *Fili* of this rank was entitled to keep, that is, to have supported for him, a grey-hound, a beagle, four stallions, two mares, and their foals—the maintenance of the horses, being we are told, at the expense of the church. The king fostered the *Ollamh's* sons as if they were his own; and the queen was bound to give dowries to his daughters. In return for all these emoluments and privileges the *Fili*, or poet, was bound to furnish a panegyric of the prince annually. In fact the chief function of the *Fili* when he became a mere poet was to eulogize the chief, and the chief's family and ancestors. The designation, given to the Gaulish bards, of parasites who attended the Gaulish warriors on military expeditions to celebrate their praise, by Posidonius the Rhodian Stoic, who visited Gaul about 100 B.C., applies with equal truth to the Irish *Fili*. The flattery was not given without hope of reward, however. In the glossary attributed to Cormac, who was at the same time king and bishop at Cashel in the 9th century, which is at least as old as the 10th century, we are told that the reason why the second degree of *Fili* was called an *Anruth* was because of "the rich stream (*Sruth*) of beautiful praise which flows from him, and the stream of treasures which flows to him in return." This was exactly the sentiment of the Gaulish bard who in eulogizing the magnificence of Bituitus the Avernian chief said, "From the track of his chariot-wheels sprang gold and blessings to mortals." An *Ollamh*, or as we might call him a doctor, in *Filidecht* was entitled to have a certain number of scholars who formed his retinue when he went abroad. One of his privileges was to make a circuit at certain times, the extent of which depended upon his rank. When, for instance, an *Ollamh Fili* became chief poet, and was invested with the *Tugen*, or cloak trimmed with white feathers, the symbol of his office, he might make a circuit of Ireland. During his circuit the *Ollamh Fili* was entitled to maintenance and protection for a certain time, not only for himself but for his legal retinue, and their horses and dogs also. They could not, however, remain beyond the fixed legal time without special invitation. A *Fili*, or indeed any of the recognized learned professions, could not claim hospitality as a right from any one below a certain rank, which was measured by his own.

The bards who recited poems and stories formed at first a distinct branch from the *Fili*. According as the true *Filidecht* fell into desuetude, and the *Fili* became simply a poet, the two orders practically coalesced, and the names *Fili* and bard became synonymous. There were several degrees of bards, according to the number of poems and stories which the graduate should be able to recite. In pagan times, and during the Middle Ages, the Irish bards, like the Gaulish ones, accompanied their recitation of poems on a stringed instrument called a *Crut*, believed to have been a harp. The bard was therefore to the *Fili*, or poet, what the *Jogler* was to the *Troubadour*, and the *Jongleur* to the *Trouvère*. The *Cruitire*, or harper, who likewise played upon a kind of Rote called a *Timpan*, and who belonged to the privileged classes, while the players on other instruments did not, was probably the representative of the true bard.

One of the most interesting points in the history of Celtic literature is the relation of the transformed Druidic hierarchy just described to the Christian church. Independent of its own intrinsic interest some knowledge

of this is necessary in order to understand the system of schools in Ireland in the early Middle Ages, and the position which the native literature occupied in them. Before stating what we have to say on the latter subjects we must therefore briefly describe the character of the early Irish Church.

The presence of British bishops at several councils, and the production of so distinguished a heresiarch as Pelagius, prove that there must have been an organized church in Britain in the 4th century. At that period there were many populous towns there, and much of the culture of a rich Roman province. The British Church must, therefore, have been organized upon the municipal type as in the rest of the Roman empire; that is, the jurisdiction of the bishops must have coincided with the civil government of the Romans, out of which the later diocesan system grew. The intercourse, partly commercial, partly hostile, which took place between Britain and Ireland in the 3d and 4th centuries could scarcely have failed to introduce Christianity into the latter country. Mediæval writers state that Christianity existed in Ireland before St. Patrick; and Celestius, the chief disciple of Pelagius, and, according to St. Augustine, the real leader of the Pelagians, was an Irishman. Indeed, if we can trust the statement of Genadius, who flourished at the end of the 6th century, the parents of Celestius must not only have been Christians in Ireland in the year 369, but must have known the use of letters, for, according to the writer quoted, Celestius wrote three letters, in the form of little books, on the things necessary for all desirous of serving God. This primitive Irish church appears to have been principally, if not altogether, confined to the south of Ireland, the province of Munster forming an independent kingdom at this period, or at least one having but little political connection with the other provinces.

In after times, when the fame of St. Patrick had become established, and he came to be regarded as the sole apostle of Ireland, the saints of the primitive church, many of whose names have come down to us, were assumed to have belonged to the Patrician period, or were confounded with persons of the same name. In this way St. Brendan, the voyager, born on the shore of the Atlantic Ocean in the county of Kerry, has been confounded with a later St. Brendan who lived in the centre of Ireland. The church which grew up in the south of Ireland, though the offspring of the British Church, must necessarily have adapted itself to the political and social organization of the country, which was altogether tribal, and being without walled towns had none of the elements of municipal government which had moulded the church organization elsewhere. Some of the Irish legendary lives of saints of the early church, though, in the form in which we have them, not older than from the 12th to the 14th century, give us amidst a luxuriant growth of prodigies an insight into this highly interesting church, which the subsequent conversion of the rest of Ireland by St. Patrick merely extended, but did not change. When a missionary had converted a chief and his *Occa*, or principal men, he became an adopted member of the tribe, and was considered to be a *Sai*; in other words, he was given the same rank and privileges as the pagan priests had. Beyond building a round wicker oratory for the priest, no change whatever was made in the organization of the tribe. The course of study for the different grades of *Ecna*, *Filidecht*, and *Fenechas* went on as before, except that in the course of *Ecna*, or wisdom, the Christian doctrine was added. The practice of the different kinds of verbal incantation which did not involve distinct pagan rites some centuries later by the poets shows this. Fasting, prayer, and vigils were practiced, and those

who wished to embrace the ecclesiastical state, that is to join the new learned class called later the *Gradh Eclasa*, or grade of the church, tonsured themselves, as did the students of *Filidecht* also, as we have before said. The *Dun*, or fortified residence, of the chief, around which lay always a village of the different classes of people who constituted the retainers of an Irish chief, became a kind of *Cenobium* of a novel type. Some members of the *Fine*, or "House," desirous of practising a higher degree of asceticism, went into the march-land, or waste land of the territory, and built a wicker hut and oratory. Others followed, and built their huts all around, and a new *Cenobium*, consisting of a village of huts and a circular oratory gradually grew up, which differed from the original one only by the absence of the ramparts and ditch forming the *Dun*. Afterwards the round tower, which was a mere extension of the circular stone *Caisel*, itself an imitation in stone of a circular wicker-house—afforded a refuge and place of safety for preserving from fire and theft the sacred vessels and books belonging to those religious establishments, which were directly established for religious purposes.

Whether a single *Fine* or the collection of "Houses" forming a *Tuath*, or tribe, became Christian, they were all of the same blood, and the right of succession to the property and government of the church remained with the *Fine* or "House" of the donor. The church within each *Tuath*, or tribe, which constituted the unit state of the Irish political system, was simply a spiritual *Fine*, or "House," and could receive and hold land only in the same way as any other *Fine*. Hence the *Comorb* (coheir), or successor of the founder of a *Cenobium*, might be, and frequently was, a layman. This explains, too, the aristocratic character of the saints of the early Irish Church, who all necessarily belonged to the families of the chiefs, as the unfree classes could not form *Fines*, or "Houses," or enter those in existence, except by adoption according to legal forms. When a person of low birth appears among the saints we are sure to have some legend showing how he came to be adopted by somebody. As a consequence of this system all the *Cenobia* which grew out of the first, and the chapels which were established in connection with the *Cenobia* to supply the religious wants of districts remote from the latter, remained under the government of the parent establishment. Nay more, the *Cenobia* founded in neighboring countries by missionaries often continued to acknowledge the headship of the parent establishment. They formed, in fact, a religious clan, in which the abbot of the parent establishment exercised the same kind of authority as the head of the ordinary clan. In this way it often happened that bishops, notwithstanding the higher order of their functions, were under the jurisdiction of priests, and even of women, as in the case of St. Brigit. This peculiar organization of the church continued to exist unaltered in Ireland during several centuries, indeed with few changes, chiefly relating to the position of bishops, down to the Norman Conquest. The Irish carried this organization with them into Wales, Scotland, England, Gaul, Germany, and Switzerland, where it was finally supplanted by the Benedictine order.

When a *Dun*, and its surrounding village, in which lived the various classes who formed the household and retainers of a chief, became a kind of *Cenobium*, in which were associated together those who had formally adopted a religious life and those who had not, we can understand how a school could grow up in which *Ecna*, *Filidecht*, and *Fenechas* should be taught along with Latin and Christian knowledge. But even in the case of *Cenobia* which had a direct religious origin the same thing took place, because many persons of those pro-

fessions embraced a religious life, and came there with their pupils, either with the object of increasing their own knowledge, or to partake of the literary life of the place. In the 6th century some of those schools had already acquired considerable reputation; while in the 7th and 8th centuries some had grown into small towns, and were much frequented by strangers. Bede tells us that in 664 many of the nobility and lower ranks of the English nation were in Ireland leading a monastic life, or attending the schools, "going about from one master's cell (hut) to another." Incidentally we learn that one of those schools, namely, *Cill Belaigh*, had seven streets of huts occupied by foreigners in the first half of the 8th century. From all this it will be seen that the teachers in the Irish schools, even when connected with Cenobia, or later with monasteries, were not necessarily ecclesiastics. Indeed some of the most distinguished men who taught in them were laymen, such as Mac-Coise, Colman O'Cluasaigh, &c.; and even Flann, surnamed of the monastery, who was head-master of the school of St. *Buite*, now Monasterboyce, in the first half of the 11th century, was a layman and married. This explains the circumstance, so unusual in other countries in the Middle Ages, of so distinguished a scholar as Johannes Scotus Erigena being a layman.

The course of instruction included under the term *Fili-decht*, which an *Ollamh Fili* passed through, as laid down in a special tract called the *Leabhar Ollanhan*, or *Book of Ollaves*, occupied twelve years, eight of which were devoted to learning to read and write the grammar of the Irish language, the laws of the privileged classes, *Fili-decht* proper, which besides vaticination, &c., included whatever knowledge was then possessed of the phenomena of nature, the elements of philosophy, *Diunsenchas* or historical topography, and learning by heart about 270 tales and a number of poems, and the secret language of the poets, &c. The ninth and tenth years were devoted to the composition of various kinds of poetry; the eleventh year was employed in composing fifty major and fifty minor specimens of verse requiring the use of four kinds of metre. The studies of the twelfth year consisted in the composition of six orations, and the study of the art of poetry according to the precepts of four different authors, whose treatises are unfortunately either lost or unknown. The last two years of the course were for those who proposed to become *Ollamhs*. Whatever may have been the character of the teaching or the value of the outcome, it is the earliest example of the cultivation of any vulgar language in Europe. As an example of the importance attached to the native literature, it may be mentioned that the head-master of a school was obliged to go through the course just indicated, as well as to know Latin, "and from the Ten Commandments to the whole of the Scriptures." The school here implied would be one of those connected with a Cenobium, or monastery, and had usually six teachers. The lowest of these taught the students to recite the psalms; the second taught the course of native literature just described up to the end of the 10th year. The fourth master taught Latin, arithmetic, and the elements of astronomy and geography; the fifth master was professor of divinity; and the sixth was the head-master, who was supposed to know the whole course, both profane and sacred.

In discussing the outcome of this system of education we can here of course take cognizance only of what has been written in Irish, and must consequently leave out of consideration the Latin hymns of the early church, the writings of Columbanus, Sedil or Sedulius, Johannes Scotus, Adamnan, and others who wrote in Latin. For the same reason we must in speaking of existing Irish manuscripts leave out of consideration the Latin

ones, among which are some of the most remarkable illuminated books in Europe, such as the Book of Kells. In the Ambrosian Library in Milan, the libraries of the convent of St. Gall and of Bern in Switzerland, of the University of Würzburg, and of Carlsruhe, there are several Latin manuscripts glossed more or less copiously with explanatory Irish words. There is also in the town library of Cambray a manuscript containing the canons of an Irish council held in 684, in the middle of which is preserved a fragment of an Irish sermon on self-denial. These manuscripts, some of which belong to the 8th century and the others to the 9th, furnished materials to Zeuss for his *Grammatica Celtica*, a work which created an epoch in Celtic philology. With the exception of the last-mentioned none of these manuscripts contain a continuous Old Irish text. But according to Mone there is in the convent of St. Paul, somewhere in Carinthia, a manuscript altogether in Irish, containing among other pieces poems, copies of which are to be found in the manuscripts of the 14th century in Ireland. In the Royal Library at Copenhagen there is one manuscript, partly vellum and partly paper, containing Irish poems, which formerly belonged to Professor Thorkelin, but we do not know its age. The manuscripts formerly belonging to the Irish College at Louvain were dispersed, the better portion being taken to the Franciscan convent of St. Isidore at Rome, where they remained until within the last five or six years, when they were brought to the convent of the same order in Dublin. The remainder of the Louvain manuscripts, consisting chiefly of copies of Irish lives of the saints made for Colgan when preparing his *Acta Sanctorum*, are now in the Royal Library at Brussels. These are all the Irish manuscripts now known to exist on the Continent. The Irish manuscripts in the United Kingdom are very numerous, and by good fortune the majority of them, and these the most valuable, are in public libraries, and are thus at once more accessible to scholars and safer from fire, the danger by which Welsh literature has already suffered much loss.

The number of Irish manuscripts which formerly existed must have been considerable if the *Fili* were as industrious as they were numerous and well rewarded. More than thirty books are mentioned by special names as sources from which some of the most important existing manuscripts were compiled, which are now lost, although some of them existed as late as the 17th century. Nearly all the most valuable existing books are to be found in four public libraries, namely, those of the Royal Irish Academy and Trinity College, Dublin, the Bodleian Library at Oxford, and the British Museum. The collection of Irish manuscripts belonging to the Royal Irish Academy is the largest of all, and comprises, besides a large number of paper manuscripts containing many things not found elsewhere, the valuable vellum manuscripts, *Leabhar na h-Uidhri* or *The Book of the Dun Cow*, *The Book of Ballymote*, *The Book of Lecan*, *The Leabhar Breac* or *Speckled Book*, *The Book of Fermoy*. Next in importance stands the collection of Trinity College, Dublin, which contains *The Book of Leinster* (the most valuable from a literary point of view of all existing manuscripts), the yellow *Book of Lecan*, and a number of other manuscripts full of poems and prose tales, besides the most valuable of the existing law manuscripts. The collection in the Bodleian Library, though consisting we believe of only sixteen volumes, is very valuable. Besides a rare law manuscript it includes a manuscript compiled perhaps as early as the year 1100, and certainly not later than the first half of the 12th century, and containing some important poems not known to exist elsewhere. The British Museum Library has now a considerable number of

Irish manuscripts, chiefly, however, written on paper. But besides some law manuscripts of value, there is one vellum manuscript, a small folio of 68 leaves beautifully written about the year 1460, formerly belonging to Sir Henry Spelman, which contains the best extant copies of several of the most celebrated historic tales. Of the vellum manuscripts in private hands the most important are *The Book of Lismore*, belonging to the duke of Devonshire, and kept at Lismore Castle in Ireland; a manuscript in the possession of the O'Connor Don, containing a large number of poems of the 15th and 16th centuries; *The Liber Flavus*, a small folio manuscript of about the beginning of the 15th century; the manuscripts formerly belonging to the duke of Buckingham, and now in the possession of the earl of Ashburnham. The most important manuscript in this collection, which is inaccessible to scholars, is the larger fragment of *The Book of O'Duvedan*, *Ollamh of Ui Maine*, the O'Kelly's country, who died in the year 1372. The other part of this manuscript is in the British Museum.

The contents of these manuscripts are of the most miscellaneous character, in fact many of them are mere scrap-books. The following classification will enable the reader to form some general notion of the nature of existing Irish literature:—(1) grammar and glossaries; (2) annals, genealogies, and pedigrees; (3) history, legendary and real, including a large number of narrative poems, some of which might be considered to be ballads, and prose historical tales; (4) mythological and other imaginative tales; (5) lyric poetry; (6) satire; (7) religious literature, including lives of saints; (8) law; (9) science, inclusive of medicine; and (10) miscellaneous translations from other languages. The manuscripts containing this varied literature were written after the 11th century; only three of the principal ones above mentioned are as old as the 12th, the remainder being written chiefly in the 13th and 14th centuries. The contents of a manuscript are at least as old as itself and may be much older. Sometimes the manuscript itself informs us that a particular piece was copied from another manuscript which is named. Again, poems are attributed to authors who lived long before the manuscript containing them was written, even as far back as pagan times.

The first point which naturally suggests itself for inquiry is whether the Irish knew the use of letters before the introduction of Christianity. This question has been much discussed, but as there is not much evidence one way or the other, the discussion has not been profitable. Cæsar says that the Gauls knew writing and used the Greek alphabet, showing that their knowledge of letters probably came from the Greek colony of Massilia; and the Gauls of North Italy used the Etruscan alphabet long before the time of Cæsar. But these facts do not necessarily imply that their brethren in the British Islands had also a knowledge of letters before the arrival of the Romans, nor have we any evidence even after that event that the British language was written. The Celtic names on British coins prove nothing one way or the other. As regards Ireland, the only piece of evidence of the existence of a knowledge of writing before St. Patrick's time is the statement of Gennadius respecting the letters of Celestius. This, it must be admitted, would be very slender evidence to found a conclusion upon unless supported by more definite facts.

Whatever opinion then may be held as to the existence in Ireland of a knowledge of letters in prehistoric times, we may safely assume that literature in the true sense of the word began there with Christianity. In saying this, however, we are not to be understood as denying that a record of events, accounts of battles, panegyrics of warriors, may not be orally transmitted in

verse. Metre, alliteration, rhyme, and assonance are powerful aids to the memory, and a bar to the introduction of new matter, and consequently prevent two different streams of traditions from mingling. But in time, and especially among a highly imaginative people possessing the power of improvising in verse, the streams of verse did mingle, enlarge, and modify themselves. Nevertheless it is marvellous how perfectly long poems of the most complex metrical structure may be transmitted by oral tradition for centuries. Poems transmitted in this way follow of course all the phonetic changes of the language, and when at length they are written down from memory, look as if they had been composed at first in the living language. In this way an essentially pagan literature may come as it were into existence long after paganism itself had passed away.

We need not dwell on the first category of Irish literature further than to observe that Irish scribes seem to have had a special liking for glossing, and that if all the existing glossaries, old and new, were added together we should have at least 30,000 words besides those in printed dictionaries, a richness of vocabulary unequalled perhaps by any living language.

Annals form a notable element in Irish literature, but we can do little more than mention a few of the more important complications. During the 11th century attempts were made to synchronize Irish events with those of other countries. Of these may be mentioned the synchronisms of *Flann* of Monasterboyce, already mentioned. But the most notable attempt to synchronize events is that made by *Tighernach O'Braoin*, abbot of Clonmacnoise, who died in 1088. *Tighernach* in his Annals displays considerable scholarship, and for the time fair critical power. He was probably the first to introduce the common era into Irish annals. The oldest copy, and unfortunately only a fragment, is in a manuscript of the 12th century in the Bodleian Library at Oxford, nor can a perfect copy be made out of the six or seven other copies which are known.

The political and social organization of Ireland, and especially the custom of gavel-kind, made pedigrees and genealogies matters of great importance. The Irish genealogies are usually carried up to Noah, and include on the way many eponyms and even divinities. The Biblical portion may be easily removed without detriment to the Irish part; but it is not so easy to say where the legendary and the true touch. Within the historical period the pedigrees and genealogies afford great help in historical inquiry, though it should not be forgotten that a *Sai* was quite as capable of inventing a pedigree as any modern herald. Topography may be said to be the complement of pedigrees, and like the latter was of great use to Irish families, and was accordingly, as we have already pointed out, well attended to. Of this kind of literature the most curious and valuable example is the tract called the *Dinnsenchas*, said to have been compiled at Tara by a *Sai*, named *Amergin Mac Amalgaidh*, or Macauley, about the year 550. This work, the oldest copy of which is in the Book of Leinster, gives an account of the legendary origin of several places of note, and thus preserves invaluable mythological materials.

Every successive race which peopled Ireland had, we are told, its historian, whose names are given, and in some cases particular verses and even long poems are attributed to them. These are, of course, mythological personages, but this fact is in itself a proof of the antiquity of the system of recording in verse the history of the country. Without going back to *Coirbre*, the son of the goddess *Etain*, wife of *Ogma* "of the sun-like face," a long list of poets beginning with *Ailill Olum*, a king of Munster in the 2d century, the supposed pro-

genitor of the chief Celtic families of the south of Ireland, may be made out. There are three poems in *The Book of Leinster* attributed to the *Ailill* just named. It is needless to say that in their present form these poems could not be the work of a poet who lived a thousand years before *The Book of Leinster* was written, even if the poet were not, as is probable, only an eponymous ancestor of Munster clans. To the same or a somewhat later period belong several other mythological personages to whom poems still extant are attributed, and of whom we shall have something to say presently,—namely, *Finn* son of *Cumall*, contemporary of *Cormac* son of *Art*, “the lone man,” and a reputed author himself, *Oisín* the son of *Finn* (the Ossian of later romance), and his brother *Fergus*, and his cousin *Cailte*.

In the 11th and 12th century prose came largely into use, as is shown by the large number of prose historic tales and romances which were written at this time. It is difficult to draw a line between real history and historical fiction in an early literature, but in Irish it is especially so, for we find many of the so-called historical tales so free from the miraculous, and so sober in the narrative, that at first sight we could scarcely refuse to accept them as history; and yet one of them to which this description applies is undoubtedly an account of a war between deities. In general, however, we can follow all the stages from a simple historical narrative up to a full-blown romance.

The Book of Munster, though of uncertain date, and not known to exist in any old manuscript, is a work which illustrates very well the peculiarities of Irish historical compilations. It begins with an account of the Creation taken from Genesis, which serves as an excuse for tacking on the Biblical genealogies to the Irish ones; then follows the history of the Milesians from *Eber*, son of *Miled*, the eponymous ancestor of the Munster tribes, to *Brian Bóroimhé*. The legendary part of the work is to be found in most of the principal Irish manuscripts; but the part relating to the period from the 7th to the 10th century is of great interest, and contains much not found elsewhere. The ethnic legends just referred to, which form so prominent a feature in Irish historical compilations, have been all brought together in what is called *The Book of Invasions*. This work is a link between genealogies and historical narrative proper, and consists of the legendary histories of the successive tribes supposed to have peopled Ireland, and of their eponymous leaders, into which are introduced many curious so-called historical poems, the matter of which, if not the language, is of considerable antiquity. The oldest copy of *The Book of Invasions*, the author of which is not known, is that in *The Book of Leinster*; the one which existed in *The Book of the Dun Cow* in 1631 has been unfortunately since lost, with much of that valuable manuscript.

The learning of stories formed, as we have seen, an important feature in the course of *Filidecht*. An *Ollamh Fíli*, for example, was bound to know two hundred and fifty prime stories, and one hundred secondary ones. In the 11th and 12th centuries the number of stories current must have been very considerable. There is a list of one hundred and eighty-one tales in *The Book of Leinster* classified under the heads—Destructions, Cow Spoils, Wooings, Battles, Adventures in Caves, Wanderings and Voyages, Deaths or Tragedies, Feasts, Sieges, Adventures, Abductions, Slaughters, Irruptions of Lakes, &c., Visions, Loves, Expeditions, Marches or Progressions. More than one hundred of these are still extant, and of these nearly one half are to be found in manuscripts as old as the 12th century, into which they were copied, as in many instances we are distinctly told, from older books.

The mythological tales all relate to the inhabitants of the *Síde* or Celtic Elysium, whose chiefs were the mythical *Tuatha Dé Danann* leaders, and who form, as we have pointed out above, an extensive pantheon.

There is another class of compositions—the *Físa*, or Visions, which, though strictly belonging to the category of religious literature, offer so many analogies to the *Immram*s or Wanderings, in some of the incidents, that it is better to say a few words on them in this place. In several pagan tales we have examples of visions, some brought about by pagan rites, which are the prototypes of the later Christian visions, such as those of St. Adamnám, and St. Fursey. The Christian visions of Hell and Heaven owe something to Virgil, but the extent of the obligation is much smaller than might at first sight be supposed, for we can trace the growth of the ideas under which the *Fís* or vision was evolved or developed to the fusion of pagan, Celtic, and Christian notions. Several of the adventures of Brendan, *Maeldum*, and the sons of *Ua Corra* contain scenes which have the same origin as many of those depicted in the visions.

The tales which we propose to include under the head of heroic tales form a large and well-marked epic cycle. The central tale of the series is the *Táin Bó Cuailnge* or Cattle Spoil of *Cuailnge*, now Cooly, in the county of Louth, which relates the history of the war waged by *Medb*, queen of Connaught, the Queen Mab of fairy mythology, and her husband *Ailill*, with *Conchobar Mac Nessa*, king of Ulster, for the possession of the mystic brown bull of *Cuailnge*, in which the hero *Cúchulaind* defends Ulster single-handed, while the king and his champions are in a peculiar state of debility inflicted upon them for a savage act of the former. The existing tales of the series amount to about thirty, exclusive of the tale of the *Táin* itself and of the prologues and fore-tales narrating the preparations for the great cow-prey. In these tales as a whole we have one of the most complete epic cycles in any literature. We have a narrative of the life of the great hero of the series from his conception to his death, of *Medb*, the chief heroine, and of all the chief personages on both sides, male and female—*Conchobar Mac Nessa*, *Fergus Mac Roigh*, *Ailill*, husband of *Medb*, *Conall Cernach* and *Lóinguire* or *Leghaire Buadach*, companions of *Cúchulaind*, the sons of *Uisnech*, and *Ferdiad*; *Deirdrin*, *Emer*, and the other women who take part in the action.

Who the author of the *Táin Bó Cuailnge* or of any of the tales of the heroic period was is not known. A curious legend points to *Senchán Torpeist*, a poet who flourished about 600, as the person who gave the *Táin* its present form; another tradition assigns the work to St. *Ciarán* of Clonmacnois. The language of the portion of the *Táin* in *The Book of the Dun Cow* is not older at most than the beginning of the 10th century; the text of *The Book of Leinster*, which contains the whole story, is more modern, although the two manuscripts do not differ in age perhaps fifty years, the language of each copy evidently following, as we have before pointed out, the current of the spoken language. The tales of the heroic cycle, whenever originally written, are essentially pagan, and represent an early state of society still unaffected by Christianity or by Roman influence.

The poems and tales which we have called Fennian, or Oisianic, form a cycle entirely distant from the heroic one. Their history, too, is curious. *Finn*, or *Find*, the son of *Cumall*, the chief hero of the tales, is supposed to have flourished in the second half of the 3d century and to have acted as commander of a body of mercenaries. He therefore lived at a time which may be considered, if not actually within the historic period,

at least upon its threshold. The struggle of the various races for mastery was ended, and this militia or standing army was evidently intended to keep the subject races in check. That the idea of such a force was suggested by the Roman army in Britain there can be little doubt. Perhaps to the existence of this body is due the considerable scale upon which the subsequent invasions of Britain by the Scots took place. As *Finn* appears in the accounts of the battles which he is supposed to have fought, he has all the air of an historical character, and is almost entirely devoid of legendary accessories. The same may be said of his son *Ossian*, the poet, and of his grandson *Oscar*.

The Fennian or Ossianic legends are very numerous and very romantic, and there is a distinct Fennian toponymy, which has not obscured or invaded that of the historic period. *Finn* is still a popular hero, while *Cúchulaind* has become a shadow. In the current Fennian literature, as distinguished from the mere corrupt popular plastic legend on the one hand, and the Fennian poems and tales contained in good manuscripts of the 15th century on the other, there is an increasing disregard of relative chronology, and of consistent toponymy. There is not the same terseness and clearness of expression in the new as in the old stories; they are evidently the work of a people who are no longer in the same stage of culture. The descriptions of the dress and arms of the actors are vague, the number of those slain in battle is greater. The romances of the 14th and 15th centuries are full of magic and wild prodigies, but nevertheless they have the aroma of the forest and the mountain heather; one hears the echo of the huntsman's horn, and sees the real life of the *Dun*, and the deep drinking of the chief's ale-house. The prose tales lack the refinement of the Welsh *Mabinogion* and the poems the polish of the Welsh ones, but they are truer products of the national culture of the period.

The sixth or miscellaneous class of legends does not require special notice, the more so as we have already included among the mythological tales some that might come under this head. Nor do the limits of this article permit us to say anything on the subject of lyric poetry.

The success which attended some translations made by James MacPherson led him to make a tour in the Highlands, and to gather as many poems and other specimens of Gaelic literature as he could find. It was no doubt during this tour that he matured his idea of using the legends preserved in the popular memory, written down in Scottish Gaelic, and existing in the Irish MSS., which he came across in his travels, as materials out of which to compose the poems which have since become so celebrated under the name of poems of Ossian. We mean of course the English poems, for in the usual sense of that word no Gaelic originals existed. The so-called originals are a very curious kind of mosaic, constructed evidently with great labor afterwards, in which sentences or parts of sentences of genuine poems are cemented together in a very inferior word-paste of MacPherson's own. We have pointed out that the personages of the two cycles of romance, the heroic and the Fennian, are never mingled as actors in genuine national poetry tales. This is, however, done commonly by MacPherson. This mingling of the heroes of two different cycles of romance would be sufficient to prove, did we possess no other test, that MacPherson had no original. The old Celtic tales are especially characterized on the one hand by the detailed descriptions they give of the personal appearance, dress, and arms of the chief actors in a tale, and of the internal arrangements of the houses, &c.; and on the other by the absence of descriptions of scenery, except when *Tir Tairngire*, the Land of Promise, is in

question. The aspects of nature were familiar to those who listened to those tales; what they wanted to realize were the actors and their deeds. MacPherson's poems, on the contrary, are full of word-pictures of nature, sometimes no doubt bombastic, but generally giving beautiful, and often grandly poetic, descriptions of the most characteristic features of the scenery of the Highlands. But the actors in his epic are like figures seen through a mist, barely sketched in outline, whose dress, ornaments, and arms are so generally and vaguely described as to lose all peculiar and distinctive character.

The number of Welsh manuscripts is considerable, but with the exception of those in the British Museum, the library of Jesus College, Oxford, and that of the university of Cambridge, they are all in private collections.

If we might judge by names alone, the British, between the departure of the Romans and the conversion of the Anglo-Saxons, possessed many historians. Welsh antiquaries give a long list, and some find a place even in the works of English and foreign writers; but with the exception of Gildas and Nennius, the titles only of their writings are known, nor are these above suspicion.

The *Historia Britonum* is more valuable for the legendary matter which it contains than for what may be accepted as history, for it gives us, at least as early as the 10th century, the British legends of the colonization of Great Britain and Ireland, the exploits of King Arthur, and the wonderful birth and prophecies of Merlin, which are not found elsewhere before the 12th century. The date of the book is of the greatest importance to the history of mediæval romance, and there can now be no doubt, that it is earlier than the Norman Conquest, and that the legends themselves are of British origin.

The poetic literature of the Welsh, which is very extensive, may be conveniently divided into — (1) Poems attributed to poets who lived before the 12th century, and anonymous poems in *The Black Book*; and (2) Poems written by or attributed to poets who lived in the 12th and succeeding centuries. The claims of the Welsh to possess an ancient literature rests altogether on the poems of the first category, hence they have been the subject of much discussion. The grounds upon which such discussions have hitherto rested have altered considerably within the last few years. The labors of Zeuss and others who have worked at Celtic philology, and the discovery of specimens of Old Welsh in the *Cambridge Codex* of Juvenius, furnish us with much safer canons of criticism than existed in 1849, when even a learned Welshman, the late Mr. Thomas Stevens, who did more than any one else to establish the claims of his country to a real literature, doubted the authenticity of a large number of the poems said to have been written by Taliessin, Aneurin, Merlin, and Llywarch Hên, who are supposed to have lived in the 5th century. Mr. W. F. Skene has done a very great service to Welsh literature by the publication of the texts of those poems from the four principal manuscripts now known, *The Black Book*, *The Book of Taliessin*, *The Book of Aneurin*, and *The Red Book*. In addition to the texts Mr. Skene has given translations of the poems specially made for him by the Rev. D. Silvan Evans and the Rev. Robert Williams, so that next to the Welsh Laws, and Stephens' *Literature of the Kymry*, his *Four Ancient Books of Wales* is the most important contribution to Welsh literature yet made.

Welsh tradition has preserved few poems of the period between the end of the 6th century and the end of the 11th, a period of 500 years, nor, for the matter of that, even the names of poets, a circumstance which is intelligible enough if we consider that Welsh literature

really began with the 11th century, but inexplicable according to the ordinary views of Welshmen.

By an Arthurian romance we mean a tale in which Arthur is a chief hero, and the scene of which is laid in Wales or South England. The legends of Arthur in this sense belong chiefly to South Wales, and must have originated there in great part, though they were afterwards much modified by new elements introduced from Armorica by *Shys ab Vewdwr* and his followers at the end of the 11th century. At this period South Wales was more civilized than North Wales, because less mountainous and more fertile, and also because it had considerable intercourse with France. These very circumstances led to its conquest by the Normans earlier than North Wales, which maintained its independence nearly a century longer. Before the advent of the Normans in South Wales, stone-built castles and churches existed, but they erected much stronger and more splendid castles, and the clergy whom they introduced built fine churches and great abbeys. The Norman castles and walled towns and trained men at arms, always ready for war, must have afforded more protection to commerce and agriculture than it could enjoy under the Welsh tribal system. The wants of the new nobility, too, were greater, their courts were more splendid, their dresses and arms more costly than those of Welsh princes; and corresponding splendor was introduced into the ceremonies of the church. The Norman baron was not prouder, but was graver and more courtly than the Welsh lord. All these things acted on the popular stories and gradually transformed them, as manners improved, into elegant romances of chivalry. The abundant materials of romance which existed in Wales were the property, so to say, of the strolling minstrels and peasantry, and were despised by the lettered bard with whose poems the popular tales competed. Carried into Armorica, they became, as it were, ennobled, and assumed a more polished and courtly form; and when brought back by *Rhys ab Tewdwr*, almost entirely displaced the conventional poems of the bards, which were chiefly eulogies of the living, and elegies of their dead patrons. This is the reason why South Wales produced so few poems from the 12th to the 15th century. These romances were soon translated, or rather new ones constructed upon the same themes, by the Norman Jongleurs, who soon spread them among the Norman nobility everywhere. The heroes of *y Gogledd* were well adapted to serve as actors in the courtly romances. They appear in the poems which we have discussed above as so many lay figures upon which to put the rich dresses and armor of the Normans, and who might be put into a fine castle anywhere without incongruity. The necromancy seems to have been largely borrowed from the Irish legends, a great many of which, of the same character as the Mabinogion, must have still existed in the 12th and 13th centuries.

The position assigned to Arthur in romance is due to accident. No one of the name occupied so prominent a position in the north as to give him of right the place occupied by Arthur in those productions. Some tale or ballad, in which a hero called *Artur* was the chief actor, might have had perchance the necessary elements for popular success; and around this as a nucleus gathered the legends of other *Arturs*. One of the sons of *Aedan Mac Gabran*, killed at the battle of *Cattraeth*, was named *Artur*; and there were doubtless many others of the name, both Scots and Britons. The name *Art* has a place in Irish romance also. Thus *Art* "the lone man," son of *Conn* of the Hundred Battles, was beloved on account of his great fame by *Becuma* of the fair skin, wife of *Labrad* of the quick-hand-at-sword, and probably the same as *Etain*, a goddess already so often

mentioned, and who had been unfaithful with *Gaiar*, son of *Manandan Mac Lir*. *Becuma*, driven out of *Tir Tairngire* or Elysium on account of her offence, is sent adrift in a boat, and lands on the Hill of Howth in Ireland, where, under the name of *Delbh Caemh*, daughter of *Morgan*, she presents herself to *Conn* and marries him. She next insists on the banishment of *Art* from Tara. Evil, however, comes on the country on account of *Conn's* marriage, and the Druids announce that it could only be averted by sprinkling the blood of the son of an undefiled couple on the door posts. *Conn* sails away in search of such a youth, finds him in *Tir Tairngire*, Elysium, and brings him to Ireland. Then we have a scene of exactly the same character as that told of *Gortigern*, but the boy is ultimately saved from immolation by the appearance of his mother, who tells them they must banish *Becuma*. The latter then plays a game of chess with *Art* the son of *Conn*, and he wins, and imposes upon her the obligation of getting the champion's wand which was in the hand of *Curoi Mac Daire* when making the conquest of *Eriu*, and of the whole world. She visits the *Síde*, and at length finds it, and brings it to *Art*. They play again, and this time *Becuma* wins, and sends him in search of *Delbh Caemh*, daughter of *Morgan*, i.e., herself, whom he would find in an island in the middle of the sea. He sails away, and arrives at a beautiful island full of apple-trees, flowers, birds, and spotted horses; in which too there were joyous ever-blooming women, and *Crede*, the ever beautiful. Again *Art* was named *Oenfhir*, "the lone man," because his brother *Condla*, "the beautiful," being invited by a *Ben Síde* to rule over *Magh Mell*, "the plain of honey in the Land of Promise," went thither and left him without a brother. *Art* is also credited with having anticipated Christian belief; and consequently it is supposed that neither he nor his son *Cormac* was buried in the pagan cemetery on the River Boyne.

It should be remembered that this *Art* lived either at the beginning of the Scotie invasions of Roman Britain, or immediately before that period, for his son *Cormac*, according to Irish legends, was expelled from Ireland, and, going over the sea, obtained the sovereignty of Alba, and his fame must have been carried into Wales, where he must have been the subject of many legends. These legends were the nucleus around which gathered all the floating traditions which came down from the north into North Wales, and thence into South Wales. Some obscure Arthur of the north, perchance *Adam's* son, was clothed in the legendary of *Art*, and was made a *Guledig* or generalissimo, and paramount king of Britain. From South Wales these legends passed into Cornwall and Armorica, where it is probable the Round Table was invented or borrowed in the same way that at a later period the legend of the St. Graal, which there is reason to believe originally came from Provence, was carried by the Jongleurs into Brittany, and thence into Wales. If the preceding view be correct, the Arthurian legends attained considerable development in Wales before the Round Table was developed, and were carried by itinerant story-tellers and musicians among the Normans before Geoffrey of Monmouth wrote his history. That book gave a value to the popular tales which they otherwise could never have attained, and afforded a key by which to correct them. To the Norman clerics the romances owe their polish, and to a large extent their chivalry. But the germs of mediæval chivalry, and even of knight-errantry were already in the original legends, associated, no doubt, with much barbarism.

Armoric, like Welsh, is a living language, but no monument of the old form of the language exists, and the relics of Middle-Breton literature consist of two miracle

plays, a prayer-book or "Hours," a dictionary, and the chartularies of two monasteries. Of this small list only one of the plays and the dictionary are known to exist in early manuscript originals or copies. The play, which is founded on the life of St. Nonna or Nonita, is a paper manuscript, which has been purchased by the National Library at Paris, and is believed by Zeuss to belong to the 14th century.

Celtic literature, although it has no great masterpiece of its own to point to, has exercised a considerable amount of influence on the creations of modern European literature. This influence was exerted by several distinct currents of legends. The first is that of the legends of the *Aes Síde* and those of Queen *Mebd* or Mab and the heroic period; of these the existing Irish legends, and the modified form of them in the Welsh *Mabinogion*, give us one type. In Britain this first current, modified and mixed with foreign and especially Teutonic elements, has gone on altering, growing, and decaying until the traces of its origin are almost unrecognizable. It is from this source that much of our fairy mythology is derived, and that Chaucer and Spenser obtained materials. To it also may be traced the legends which formed the groundwork of Shakespeare's immediate sources for *King Lear* and *Midsummer Night's Dream*. The legends of the second stream were in reality but modifications of those of the first—all secondary streams of legend must be necessarily but branches of the primitive stream. These legends were translated into Latin at an early period, and thus, while they were spread far and wide, and passed into nearly every language of Europe, we are better able to follow the current up to its first sources.

CELTIC NATIONS, one of the groups of the great Aryan family. It used to be held that the Celts were the first inhabitants of Britain. Now it is held by many that there always was, and still is, in Britain, a large element of pre-Celtic and non-Aryan blood, variously called Ivernian, Silurian, or Euskarian. In addition to the English, and retreating before it, there are at present four languages spoken in the British Isles—the Irish, the Highland Scotch (or Gaelic), the Manx, in the Isle of Man—all three nearly related to one another, and constituting the northern (Erse, Gadhelic) branch of the Celtic languages while the fourth language, the Welsh, constitutes, together with the Cornish of Cornwall (extinct since 1778), and the Bas Breton of Brittany, the southern (Briton, Cymric, Cambric) branch.

CEMENTS, substances employed to unite together by their solidification from a soft or liquid state, and without mechanical rivets, things of the same or of different kinds. Stony cement may be natural, as the lime employed for mortar, and the so called Roman cements; or they may be artificial, as Portland cement, made by calcining mixtures of chalk with clay or river-mud (see BUILDING). Roman contains more clay than Portland cement, and sets more rapidly. A good artificial water cement is obtained by heating for some hours to redness a mixture of 3 parts of clay and 1 part of slaked lime by measure. Another hydraulic cement may be made by mixing powdered clay and oxide of iron with water. A very hard stone cement is prepared from 20 parts of clean river sand, 2 of litharge, 1 of quicklime, worked into a paste with linseed-oil. Paper-pulp, mixed with size and plaster of Paris is used for moulded ornaments. *Keene's marble cement* is plaster of Paris which has been steeped in strong solution of alum or sulphate of potash, and calcined and ground. It is slaked with alum solution when used. In *Martin's cement*, pearl-ash is employed as well as alum. *Parian*

cement contains borax. *Selenitic cement* is a mixture of calcined gypsum, sand, and hydraulic lime. A cement used for cracks in boilers is a mixture of clay 6 parts and iron filings 1 part, with linseed-oil. For steam-joints, ox-blood thickened with quicklime is employed. The *iron-rust cement* consists of 100 parts of iron turnings, with 1 part of sal-ammoniac; this is an excellent cement for iron-work. For water-tight joints, equal parts of white and red lead are worked into a paste with linseed-oil. A serviceable packing for connecting pipes, making joints, filling cracks in retorts, &c., may be made by adding to asbestos powder enough of liquid silicate of soda to form a thick paste; the composition hardens rapidly, stands great heat, and prevents the escape of acid vapors. Cracks in glass vessels required to resist heat and moisture may be stopped by covering them with strips of hog's or bullock's bladder, which are affixed by means of a paste of caseine dissolved in cold saturated solution of borax; after drying the repaired portions are made capable of withstanding heat by an outside coating of a mixture of concentrated solution of silicate of soda with plaster of Paris or quicklime.

A strong cement for alabaster and marble, which sets in a day, may be prepared by mixing 12 parts of Portland cement, 8 of fine sand, and 1 of infusorial earth, and making them into a thick paste with silicate of soda; the object to be cemented need not be heated. For stone, marble, and earthenware a strong cement, insoluble in water, can be made as follows: Skimmed-milk cheese is boiled in water till of a gluey consistency, washed, kneaded well in cold water, and incorporated with quicklime; the composition is warmed for use. A similar cement is a mixture of dried fresh curd with $\frac{1}{10}$ th of its weight of quicklime, and a little camphor; it is made into a paste with water when employed. A cement for Derbyshire spar and china, &c., is composed of 7 parts resin and 1 of wax, with a little plaster of Paris; a small quantity only should be applied to the surface to be united, for, as a general rule, the thinner the stratum of a cement, the more powerful its action. Quicklime mixed with white of egg, hardened Canada balsam, and thick copal or mastic varnish are also useful for cementing broken china, which should be warmed before their application. For small articles, shell-lac dissolved in spirits of wine is a very convenient cement. Cements such as marine glue are mixtures of shell-lac and India-rubber, or of their solutions.

There are various cements for wood. For wooden cisterns a mixture is made of 4 parts of linseed-oil boiled with litharge, and 8 parts of melted glue; other strong cements for the same purpose are prepared by softening gelatine in cold water and dissolving it by heat in linseed-oil, or by mixing glue with $\frac{1}{4}$ of its weight of Venice turpentine.

CEMETERY, literally a sleeping-place, was the name applied by the early Christians to the place set apart for the burial of their dead. These were generally extra-mural and unconnected with churches, the practice of interment in churches or churchyards being unknown in the first centuries of the Christian era. The term cemetery has, therefore, been appropriately applied in modern times to the burial grounds, generally extra-mural, which have been substituted for the overcrowded churchyards of populous parishes both urban and rural.

From 1840 to 1855, attention was repeatedly called to the condition of the London churchyards by correspondence in the press and by the reports of Parliamentary committees, the first of which, that of Mr. Chadwick, appeared in 1843. The vaults under the pavement of the churches, and the small spaces of

open ground surrounding them, were literally crammed with coffins. In many of the buildings the air was so tainted with the products of corruption as to be a direct and palpable source of disease and death to those who frequented them. In the churchyards coffins were placed tier above tier in the graves until they were within a few feet (or sometimes even a few inches) of the surface, and the level of the ground was often raised to that of the lower windows of the church. To make room for fresh interments the sextons had recourse to the surreptitious removal of bones and partially-decayed remains, and in some cases the contents of the graves were systematically transferred to pits adjacent to the site, the grave-diggers appropriating the coffin-plates, handles, and nails to be sold as waste metal. The daily papers of thirty years ago contain numerous records of scandals of this kind; while from the official reports it appears that the neighborhood of the churchyards was always unhealthy, the air being vitiated by the gaseous emanations from the graves, and the water, wherever it was obtained from wells, containing organic matter, the source of which could not be mistaken. The vaults of many of the London churches are still crowded with coffins deposited in them during this period of intramural interments. In the vault of Bow Church, Cheapside, the leaden coffins form a huge mass 30 feet high, covered with fungi and cobwebs. In all the other large towns the evil prevailed in a greater or less degree, but in London, on account of the immense population and the consequent mortality, it forced itself more readily upon public attention, and after more than one partial measure of relief had been passed the churchyards were, with a few exceptions, finally closed by the Act of 1855, and the cemeteries which now occupy a large extent of ground to the north, south, east, and west, became henceforth the burial places of the metropolis. Several of them had been already established by private enterprise before the passing of the Burial Act of 1855 (Kendal Green Cemetery dates from 1832), but that enactment forms the epoch from which the general development of cemeteries in Great Britain and Ireland began. Burial within the limits of cities and towns is now almost everywhere abolished, and where it is still in use it is surrounded by such safeguards as make it practically innocuous. At a large expenditure of money London and most of our chief provincial cities and towns have been provided with spacious and well-situated cemeteries, which are under the supervision of the Local Burial Boards and of the inspectors appointed by Government, and anything like a recurrence to the scandalous state of things which existed as late as twenty-five years ago is now impossible.

Cemeteries have been in use among many Eastern nations from time immemorial. In China, the high grounds near Canton and Macao are crowded with tombs, many of them being in the form of small tumuli, with a low encircling wall, forcibly recalling the ringed barrows of Western Europe. But the most picturesque cemeteries in the world are those of the Turks. From them it was, perhaps, that the first idea of the modern cemetery, with its ornamental plantations, was derived. Around Constantinople the cemeteries form vast tracts of cypress woods, under whose branches stand thousands of tombstones. A grave is never reöpened; a new resting-place is formed for every one, and so the dead now occupy a wider territory than that which is covered by the homes of the living. The Turks believe that till the body is buried the soul is in a state of discomfort, and the funeral, therefore, takes place as soon as possible after death. No coffin is used, the body is laid in the grave, a few boards are arranged round it, and then the earth is shovelled in, care being taken to leave a small opening

extending from the head of the corpse to the surface of the ground, an opening not unfrequently enlarged by dogs and other beasts which plunder the grave. A tombstone of white marble is then erected, surmounted by a carved turban in the case of a man, and ornamented by a palm branch in low relief if the grave is that of a woman. The turban by its varying form indicates not only the rank of the sleeper below, but also the period of his death, for the fashion of the Turkish head-dress is always changing. A cypress is usually planted beside the grave, its odor being supposed to neutralize any noxious exhalations from the ground, and thus every cemetery is a forest, where by day hundreds of turtle-doves are on the wing or perching on the trees, and where bats and owls swarm undisturbed at night. Especially for the Turkish women, the cemeteries are a favorite resort, and some of them are always to be seen praying beside the narrow openings that lead down into a parent's, a husband's, or a brother's grave. Some of the other cemeteries of Constantinople contrast rather unfavorably with the simple dignity of those which belong to the Turks. That of the Armenians abounds with bas-reliefs which show the manner of the death of whoever is buried below; and on these singular tombstones there are frequent representations of men being decapitated or hanging on the gallows.

CENCI, BEATRICE (1583-1599), called "The Fair Parricide," was the daughter of Francesco Cenci (1527-1598), a Roman gentleman, no less notorious for his wealth and talents than for the shameless depravity of his life and character. Born during the sack of Rome by the troops of the Constable Bourbon, Francesco Cenci began early to be talked of as a man who cared little for law and less for public opinion, and whom it were better to serve than to offend. He was the son of a Cardinal Cenci, who, as financial minister under Pius V., had contrived in that capacity to amass an immense fortune. This enabled his heir to defy the law. Condemned on several occasions for murders and unnatural crimes, Francesco Cenci had always managed to escape sentence by the timely administration of enormous bribes. He was, therefore, a very profitable criminal, and one with whom several popes in succession found it to their interest to deal gently. A man of great force of character and at the same time of boundless passions, in the service of which his fine intellect and indomitable courage were wholly employed, he was one of those personalities, interesting by sheer weight of depravity, in which the Italy of the Renaissance abounded. He is distinguishable, however, from his rivals in villainy by an entire absence of ambition except of a sensual kind.

The pampering of his every appetite would seem to have induced in him its natural result — the infinite perversity known to psychologists as a common consequence of the weariness that follows satiety. Francesco Cenci was twice married; by his first wife he had had seven children, one of whom had died in infancy; his second wife, Lucrezia Petroni, was childless. One of the strangest sides of his horrible character was the intensity of hatred with which he regarded his surviving children. The three eldest, Giacomo, Cristoforo, and Rocco, he had sent to a Spanish university, where he kept them penniless and starving, till they could bear no more, and returned. His conduct towards them remained unchanged. Shortly before the commencement of that episode of his life with which the name of his daughter Beatrice is inseparably connected he was imprisoned for the third and last time, and his three sons presented a petition to the Pope regnant, Clement VIII., imploring him, for the sake of the honor of their house, to make an end of their father. Clement,

however, wanted money, and Francesco Cenci was released. His hate for his children was by no means lessened by this circumstance. Of his sons he never spoke but with curses; his two daughters he was in the habit of beating violently. The elder sister, however, found means to get a petition presented to Clement, in which she prayed to be removed to a convent. The Pope took pity on her, and gave her in marriage to a gentleman of Gubbio, obliging her father to dower her largely. Cenci was furious. He shut his daughter Beatrice, then aged fourteen, in a lonely room, where he visited her to bring her food, to beat her, and to revile her with her sister's flight. It is said that it was in this place and under these circumstances that Francesco Cenci conceived the monstrous passion that resulted in his death.

Meanwhile Rocco Cenci had been assassinated, and a year afterwards his brother Cristoforo met with a like fate. Thereafter Francesco Cenci, whose joy at the news of his son's death is recorded to have been awful, ceased not to torture his unhappy wife and unhappier daughter to the utmost. The ordeal must indeed have been a terrible one that could have transformed the gay, light-hearted girl-humorist into the grand woman who was afterwards to play such a notable part in crime and expiation. The account of Cenci's conduct with her is not to be repeated. Meanwhile, however, Cardinal Guerra, one of the handsomest men in Rome, had fallen in love with her, and was in the habit of visiting the Palazzo Cenci whenever Francesco left it. Maddened by the failure of a petition for the redress of their wrongs, which they had addressed to Clement, and which had miscarried, Lucrezia and Beatrice turned for aid to the cardinal, and communicated to him their design of ending their troubles by the murder of the author of them. The cardinal allowed himself to be persuaded; he lost no time in sounding Giacomo Cenci, the elder brother, and, after Francesco, head of the house, without whose consent nothing could be attempted. Meetings were held in a room in the cardinal's palace, and the advice of Lucrezia and Beatrice was taken on all points. For the execution of the design determined on, choice was made of two of Cenci's vassals, Olimpio and Marzio, both of whom were violently incensed against their master,—Marzio out of pity for his mistresses, and Olimpio for his own wrongs' sake. It was at first proposed to cloak the murder in an attack and robbery by banditti. A dozen men were to be held in readiness to stop Francesco Cenci on his way to Petrella, a fief within the Neapolitan frontier, whether he was wont to betake himself in the summer. An enormous ransom was to be asked, with the alternative of death; the mother and daughter were to return to Rome to obtain the sum; and the assassins were to carry their threat into execution. But the scheme miscarried; Francesco reached Petrella in safety, and the conspirators were forced to arrange other combinations.

The old man's treatment of his wife and daughter grew worse daily. He is said to have pretended that he believed them pleased and happy in his gray hairs and declining years, and to have tormented them with an incomparable ingenuity and ferocity. Beatrice at last found means to communicate with Monsignor Guerra, and it was agreed that, for the sum of a thousand piastres, one-third to be paid by the cardinal and the rest by Beatrice and Lucrezia, Olimpio and Marzio should enter the castle and kill Francesco in his bed. On September 9, 1588, accordingly, a strong opiate having been dexterously administered to the tyrant, the assassins were introduced into his chamber by Beatrice herself. Here they were overtaken with remorse; the spectacle of the old man sleeping was too much for them; and they re-

treated without accomplishing their intent. Beatrice, however, whose magnificent personality had risen to the occasion, received them with such indignation, that they returned and slew the sleeper, much as Jael had slain Sisera, by driving a long nail through the eye into the brain, making assurance doubly sure by driving another through the throat. When this was done Beatrice presented them with a purse of money, and clothed Marzio in a mantle laced with gold, which had belonged to her father. She and Lucrezia then withdrew the nails from the corpse, which they folded in a sheet, and dragged through several rooms to a gallery looking into an unused garden, whence they flung it into the branches of a great elder tree that grew thereby. This gallery was used for such a purpose as would lend reality to the story they intended to tell, of Cenci's leaving his bed to repair thither, and of his slipping and falling accidentally into the branches below.

Everything occurred as Beatrice and her mother had foreseen. The alarm was great, but Francesco's death was accounted for naturally enough; his remains received an honorable burial, and the two women returned to Rome, and lived tranquilly there for several months. Suspicion, however, had been excited in Naples by the circumstances of the event, and a magistrate was sent to Petrella, who arrested all the people employed about the castle. Among them was a washerwoman to whom Beatrice had given the soiled linen from Cenci's bed, with a story accounting in quite a natural way for the presence of so much blood. The woman, interrogated as to the credibility of the story, threw doubts upon it, basing her opinion on the unusual brightness of color of the marks. Details of the interrogatory were sent to Rome, but no notice was taken, and Lucrezia and her children remained undisturbed. Meanwhile, however, Monsignor Guerra, as soon as he was informed of what was passing at Naples, had sent out emissaries charged with the murder of Francesco Cenci's assassins. Olimpio alone had been dispatched. Marzio, arrested by the Neapolitan Government several months after the murder, was taken to Naples; he confessed everything.

On information being conveyed to Rome, Lucrezia and her three step-children, Giacomo, Bernardo, and Beatrice Cenci, were arrested. Lucrezia, Giacomo, and Bernardo were taken to the Corte Savella prison, while Beatrice was confined to the Cenci Palace, and guarded strictly by a troop of *sbirri*. Marzio, meanwhile, was brought from Naples, and confronted in the Corte Savella with Lucrezia and her daughter. The majesty and strength of Beatrice in this interview were such that the old vassal withdrew his confession, and chose rather to expire under torture than to incriminate his mistresses further. In the absence of any other proof, the whole of the Cenci family were relegated to Sant' Angelo, where they remained for several months. At the end of that time Olimpio's assassin was arrested, and confessed as much as he knew. Monsignor Guerra fled from Rome, disguised as a charcoal-burner, and Lucrezia and her children were taken back again to the Corte Savella.

Put to the torture, Giacomo and Bernardo at once confessed the crime and their share in it. Lucrezia, too, who was of a luxurious habit of body, was not able to endure the torture of the cord, and acknowledged her complicity also. But Beatrice was not made of such penetrable stuff. The cord made no impression on her whatever, and her genius and force of will so confounded Moscati, the judge charged with her interrogatory, that he made her the subject of a special report to the Pope. The examination was committed to a second of sterner reputation, and Beatrice was questioned by suspension

by the hair. While in this posture her brothers and Lucrezia were introduced into the apartment. All of them urged her to confess. She reproached them with their little care for the honor of the family, but at last consented. She then answered the judge's questions, denying the false and explaining the true. On the release of Beatrice from the torture and the examination, the four dined and spent the evening cheerfully together. Next day the two brothers were taken to the Tor di Nono, the women remaining in the Corte Savella; the Pope, having read the papers, had sentenced them to immediate death.

Immense efforts were made to obtain a commutation of the sentence, but a respite of twenty-five days was all that could be got. On the twenty-fifth day a body of advocates, among whom was the celebrated jurist Farinacci, presented themselves before Clement, to plead the cause of the accused; the Pope, however, refused to listen to them, and Farinacci alone was allowed to speak. They left their briefs, which Clement spent the night in reading. The next day all four prisoners were ordered to be confined *au secret*, and great hopes were entertained of pardon. But a scandalous case of matricide intervened; the assassin fled, and the Cenci was immolated in his stead, Farinacci succeeding after great efforts in saving the life of Bernardo, the youngest boy.

On the 11th of September of 1599, the four prisoners were conveyed to the scaffold. Lucrezia and Beatrice were on foot; Giacomo was drawn in a cart, and was subjected the whole way to the torture of the pincers, which he bore with great fortitude. Bernardo, who was young and long-haired, was extremely agitated, and was several times mistaken for Beatrice, who indeed was far from sharing her brother's weakness. The heat was intense, the excitement unparalleled, the crowd enormous; several deaths from fever and sunstroke are said to have occurred during the day. Lucrezia and Beatrice were beheaded, and were afterwards buried, the one in the church of San Giorgio, the other in that of San Pietro in Montorio. Giacomo was *mazzolato*—killed with a mace. Bernardo, who fainted several times, was removed to a convent,—"Oriental precautions" being taken, it is said, to prevent his disturbing the new owners in their possession of the confiscated estates of his house.

Part of these estates, conveyed to a cardinal nephew of Clement, became the Villa Barberini. Therein are still preserved the portraits of Lucrezia Petroni and of Beatrice Cenci, the latter of which is said to be by Guido Reni. Shelley's fine tragedy is well known; the poet has dealt freely with much of his material, but the result is of unapproachable excellence.

CENEDA, a district in the province of Treviso, Northern Italy, so called from the city of the same name. It is a highly picturesque region at the foot of the Alps, fertile in corn and wine, the white kind of which has considerable local celebrity. The olives which formerly abounded have almost disappeared. There are saline springs near the town, which are among the richest in iodine of any known, the proportion being 0.4032 of iodine in 10,000 parts of water. They are much used by the inhabitants of the neighboring districts. The little city of Ceneda is charmingly situated on the last slope of the hills inclined from west to east, and has the reputation of being especially healthy.

It should be added that Ceneda has recently changed its name to Vittorio. This absurd abnegation of its past history has had some little show of reason to excuse it. Ceneda and the neighboring commune of Serravalle were for many generations hereditary enemies. When the province of Venice was restored to

Italy it was determined, among other festive and fraternizing doings, that these two communes should henceforth form but one, to be known as Vittorio—an appellation which seems to have succeeded in supplanting the old historical name more entirely than usually occurs in similar cases. Population (1889), 45,000.

CENIS, MONT, or MONTE CENISIO, a mountain pass of the Alps, between Savoy and Piedmont. The culminating point of the pass reaches an elevation of 6,775 feet above the sea. Over the pass a road was constructed (1803-10) under Napoleon's orders, at an expense of \$1,500,000. This is the safest and most frequented road across the Alps. Near the pass a railway tunnel, seven and one-half miles long, was finished in 1870.

CENOTAPH (Gr. *kenotafion*, from *kenos*, empty, and *tafos*, a tomb), a monument which does not contain the remains of the deceased. They were originally erected for those whose bones could not be found, *e. g.*, who had perished at sea.

CENSER (Fr. *encensoir*, from Lat. *incendo*, to burn), a vase, or other sacred vessel, used for burning perfumes. Censers were much used in the Hebrew service of the temple, but their form is not accurately ascertained, and it is probable that they varied in this respect, according to the occasions on which they were used. The censer, called also a *thurible* (Lat. *thuribulum*, from *thus*, frankincense), is used in the Roman Catholic Church, at mass, vespers, and other offices. It is suspended by chains, which are held in the hand, and is tossed in the air, so as to throw the smoke of the incense in all directions.

CENSOR (from *censere*, to estimate), the title of two magistrates of the highest importance in the Roman republic. It was their duty to take a census of the citizens, to estimate their property and impose taxes in proportion to what each possessed, and to punish offenses not only against morality, but against the conventional requirements of Roman custom. They took cognizance of bad cultivation of the land, of the carrying on of any occupation which was considered disgraceful, of luxuriousness, of celibacy, and of many other matters of a similar kind. If the offender was a senator, they might remove him from the senate; if *eques*, they might take from him his horse, they might expel him from his tribe, and they might lower him to ærarian rank. There was, however, an appeal from their decisions to an assembly of the people; and they could only punish a citizen for definite fault, which they were bound to declare in their list. The censors also appointed the *princeps senatus*, and filled up all vacancies in the senate. At first this was done at their own discretion, but afterward they were controlled by the *lex Ovinia*, which bound them to choose ex-magistrates in the order of their rank. The censors also let out the taxes to farm; and they took charge of all public buildings, roads, and aqueducts, and undertook the construction of new public works.

At first the duration of the censorship was five years, but in 433 B.C. the dictator Mamercinus made a law restricting it to a year and a half. Upon the death of either censor the other resigned, and a new election was held. Originally patricians alone were eligible; but in 351 B.C. the plebians were admitted. The censorship was instituted in 443 B.C.; and the office continued to the time of the emperors. Vespasian and his son took the title; and the last who bore it was the brother of Constantine. The emperor generally assumed censorial power under the title of *morum præfecti*.

CENSORSHIP OF THE PRESS, the term generally applied to the arrangements for regulating what may be printed, in countries where the press is not free.

The simplest form of censorship of the press is when a public officer—the censor, or licenser, as he is sometimes called—reads over the manuscript to be printed and after striking out any objectionable passages, certifies that the work may be printed. Thence it is common in old books to see the word *imprimatur*—let it be printed, followed by one or more signatures. Though it has its name from an analogy with the functions of the Roman Censor, the censorship of the press did not come into operation until the invention of printing. It was common to all European countries, Great Britain included, but has been abolished in the latter. It still prevails in Russia, Germany, Spain, and other autocratic governments.

CENSUS is now almost solely used to denote that enumeration of the people made at intervals in most civilized countries, and in the United States every ten years. The term had its origin in Rome, where a group of the many functions performed by the high officer called censor received the name of *census*. An enumeration of the people was only one of them, but they were chiefly of a statistical character. They were especially directed to fiscal objects; and it does not appear that the enumeration of the people was then deemed of value as a source of statistical knowledge which might influence morals and legislation. It was connected with the Servian constitution, which apportioned the rights and duties of citizens to the amount of property, dividing them into six classes, which were subdivided into centuries by a mixed ratio of wealth and numbers. Had the enumeration been deemed of value for any such other purposes, besides the adjustment of rights and obligations, as those for which statistical knowledge is now deemed so valuable, the notices preserved of the vast collection of statistical facts thus made would have been less scanty and meager, and we should not have found it so impracticable to come to any conclusion about the population and extent of the city of Rome itself. The Roman census must have been minute and full. It indicated not only the number and respective classes of all free persons, but their domestic position as husbands and wives, fathers and mothers, and sons and daughters.

While the word census was thus applied to the taxation of the Middle Ages, it will readily be understood that in its modern sense it received no practical application, since neither taxation nor the adjustment of social rank required a numbering of the people; and the statistic or economic ends of such a process were as little known as they had been to the Romans. Under the despotic governments of the continent, however, the tendency to central organization for purposes of administration and police prepared the way for statistical inquiries into the numbers of the inhabitants of particular areas whenever there should occur an occasion for enumerating them. It was in Britain that the want of population statistics became most flagrantly conspicuous. It is difficult at present to realize the idea that, long after Adam Smith's time, the number of the inhabitants of the British empire could only be guessed at as the populousness of China is at the present day; and, as in all matters of statistics, which have their own simple solution through specific inquiry, the guesses about the population of the empire were not only vague but extravagantly contradictory. During the eighteenth century, the most trustworthy geographers were generally those who did not venture on an estimate of the population even in those European states which had the best means of enumeration at their command.

The mixed form of government established by that constitution, the only form of government which was then possible, by which the pre-existing States main-

tained their right to exist and to act for themselves in all strictly internal affairs, while for all national purposes political power was to be exercised by a double rule, partly through the States acting as equal bodies, and partly according to population irrespective of State lines, positively required, not as a means of administrative efficiency, but as an essential condition of its own existence, that the inhabitants of the United States should be periodically enumerated. Accordingly, we find in the constitution of 1787 a provision for a census to be taken every ten years, the first enumeration to be made "within three years after the first meeting of the Congress of the United States."

The United States presents a phenomenon without parallel in history—"that of a people who instituted the statistics of the country on the very day when they founded their government, and who regulated by the same instrument, the census of inhabitants, their civil and political rights, and the destinies of the nation." As a matter of undoubted history, the provision for a national census was incorporated in the constitution solely for political considerations. Pending the actual accomplishment of the first enumeration, an estimate of the population of the several States was adopted as a provisional basis of representation in Congress.

The first census was taken in 1790, the returns all being referred to the first of August of that year, although the work of canvassing was extended over a considerable period. As was the case with the first British census eleven years later, and as is likely to be the case with the first census of any community, great disappointment was felt at the result, and dissatisfaction at the methods of enumeration was loudly expressed. Thomas Jefferson, then Secretary of State, was careful in sending abroad copies of the published tables, to impress it on the minds of his correspondents that the returns fell far short of the truth, and even went so far as to supply the omissions which he assumed to exist. The results of later censuses, however, have established the substantial accuracy of the first enumeration, and shown that the dissatisfaction felt at the time was but the inevitable disappointment of overstrained anticipations. "To count," says Dr. Johnson, "is a moderate practice; the ancient method was to guess; and where numbers are guessed they are most always magnified." General censuses were taken in 1800, 1810, and 1820, with exact intervals of ten years. In 1830, the date of enumeration was fixed on the first of June. This change made the interval between the fourth and fifth censuses nine years and ten months only, reducing the nominal ratio of increase between 1820 and 1830, by about two-thirds of 1 per cent. The succession of census was then resumed with exact intervals of ten years. The eleventh census was taken as of date June 1, 1890.

Peculiarities of the constitution of the United States have been spoken of which rendered the census a political necessity, and secured its adoption there earlier than in countries far more advanced in statistical science and in the arts of administration. To the same peculiarities are attributable the features by which the census of the United States has come to differ from the census of other countries. The reservation by the States of all rights not granted to the General Government makes it fairly a matter of question whether purely statistical inquiries, other than for the single purpose of apportioning representation, could be initiated by any other authority than that of the States themselves. That large party which advocates a strict and jealous construction of the constitution would certainly oppose any independent legislation by the national congress for providing a

registration of births, marriages, and deaths, or for obtaining social and industrial statistics, whether for the satisfaction of the publicist, or for the guidance of the legislature. Even though the supreme court should decide such legislation to be within the grant of powers to the General Government, the distrust and opposition, on constitutional grounds, of so large a portion of the people, could not but go far to defeat the object sought.

In this political difficulty, the unquestionable provision of the constitution for a decennial census has been taken advantage of by all parties to secure much statistical information, which is not usually, and perhaps is not properly, connected with a census. Nor can there be any doubt that the introduction of new schedules of inquiries has, since 1850, somewhat impaired the efficiency of the census in its original constitutional function of making a count of the inhabitants of the several parts of the country for the purpose of distributing representation in Congress. As the census has widened, it has weakened. More has been put upon the enumerator than he could well carry. His attention has been distracted by the multiplicity of objects presented; the great number of inquiries has also perplexed and irritated the body of citizens; while the result of protracting the canvass to obtain additional information has, in the incessant changes of population, especially in cities and in manufacturing villages, allowed not a few to escape enumeration altogether.

The first enlargement of the scope of the census was in 1810, when the agents of the census were by law required to take an account of the several manufacturing establishments and manufactories within their several districts. The same requirement was contained in the Act for the census of 1820; but the results proved of so little value that the attempt was altogether abandoned in 1830. In 1840 a manufacturers' schedule was used, and inquiries respecting schools were incorporated. It was at the seventh census, 1850, however, that the main enlargement was effected. By the Act of May 23 of that year, the census was extended to cover the several subjects of mortality, agriculture, productive industry, schools, churches, newspapers, &c., &c.

The agencies and methods of enumeration in the census of the United States have been but little changed from the first, and are to-day antiquated and ineffective in a high degree. By the Act of 1790, it was made the duty of the marshals of the United States courts in the several judicial districts to take the enumeration, appointing therefor as many assistants as they should deem necessary. The enumeration was to commence August 1, and to close within nine calendar months thereafter; the returns were to be filed with the clerks of the several courts, while the marshals were to forward to the president "the aggregate amount of each description of persons within their respective districts." In 1800 the supervision of the census was placed with the Secretary of State. The machinery of enumeration remained until 1850 the same as in 1790.

In 1810 the agents of the census were placed under the direction of the Secretary of the Treasury as to the enumeration of manufactures required; but in 1820 the entire charge remained with the Secretary of State. In 1850, the supervision of the census was committed to the newly created Department of the Interior, and the period allowed for enumeration was restricted to five months. As a matter of fact, no enumeration has been completed within that time. The United States marshals and their assistants remained the agents of the census office; and a superintendent of census was appointed. In preparation for the census of 1870, a committee of the House of Representatives, under the chairmanship of General James A. Garfield of Ohio, pre-

sented a bill which sought to bring the census as nearly up to the demands of modern statistical science as the peculiar conditions of settlement and occupation in the United States would allow. The report of the committee dwelt strongly on the essential viciousness of a protracted enumeration, and on the general unfitness of the marshals of the courts to perform the duty. The bill, however, did not propose a single-day enumeration, but allowed a month for its completion. The schedules of inquiries were largely increased in recognition of the impossibility of obtaining statistical information under authority of the United States Government, except under cover of the constitutional provision for a decennial census. The rank and power of the superintendent of census were increased.

In the census of 1890 the work of enumeration was performed by supervisors assisted by enumerators in each subdivision of each census district.

CENT, and CENTIME (Lat. *centum*, a hundred), names of coins. The Dutch cent is a copper coin = $\frac{1}{100}$ th of the guilder, which is equal to 40 cents. In the United States the cent is a copper coin = $\frac{1}{100}$ th part of the dollar, or nearly $\frac{1}{2}$ penny English. The centime is the 100th of the French franc, and is of the value of $\frac{1}{5}$ of a cent.

CENTAURS, in Greek mythology, were beings part horse part man, *i.e.*, a horse had its neck and head replaced by the head and body of a man down to the waist. The oldest form was that of a man altogether in front with the body and hind legs of a horse attached to his back. In peopling solitary and wild places with imaginary beings it was usual to assign to these beings a bodily form in some obvious way consistent with the features of the locality; thus, Pan, the spirit of rocky hills, was imagined as having goat's legs, and Scylla, the spirit of sea-storms, as having the body and tail of a fish. In most cases the animal adjunct was made to supersede the human legs, as if the first consideration had been that the spirit should have a non-human means of locomotion. In the case of the Centaurs whose home was in mountainous and wooded regions with wild torrents, chiefly in Thessaly and Arcadia, the horse may have been chosen either as symbolic of the impetuosity of streams and winds, or from the circumstance of such districts being favorable for horse rearing. One of the Centaurs, Chiron, who lived in a cave on Mount Pelion, was a friend of gods and heroes, skilled in medicine and music, and as an instructor of youth; but as a race they were best known for their battle with the Lapithæ, which arose at the marriage of Peirithous and Deidamia, when the Centaurs, excited with wine, attempted to carry off the bride, but were overpowered by the help of Theseus; hence this subject, generally suitable for sculpture, was a favorite with Athenian artists. The Centaurs formed part of the retinue of Bacchus. No satisfactory derivation of the name has yet been given.

CENTAURUS, the *Centaur*, one of the constellations in the Southern Hemisphere, represented on the celestial globe by a form half-man and half-horse. The stars in this constellation are, according to Ptolemy's catalogue, thirty-seven in number; according to the Britannic catalogue, thirty-five. It contains the stars *a* Centauri and *b* Centauri, both of the first magnitude.

CENTER OF GRAVITY is that point in the body or system of bodies rigidly connected, upon which the body or system acted upon only by the force of gravity, will balance itself in all positions.

CENTER OF GYRATION is the point at which, if the whole mass of a body rotating round an axis or point of suspension were collected, a given force applied would produce the same angular velocity as it would if applied at the same point to the body itself.

CENTER OF MAGNITUDE OR FIGURE is the point on which plane figures and curved surfaces would balance themselves, supposing their areas to have weight. Thus, the center of a circle is its center of magnitude.

CENTER OF OSCILLATION. The time of a pendulum's vibration increases with its length, being always proportioned to the square root of its length. This is strictly true only of the simple pendulum, in which the pendulous body is supposed to have no determinate magnitude, and to be connected with the point of suspension by an inflexible wire without weight. If the vibrating body has a determinate magnitude, then the time of vibration will vary, not with the square root of its length, but with the square root of the distance from the axis of suspension to a point in the body called its center of oscillation.

CENTER OF PERCUSSION of a body or a system of bodies revolving about a point or axis is that point in it, which striking an immovable object, the whole mass shall not incline to either side, but rest, as it were, in equilibrio, without acting on the center or axis of suspension. If the body is moving freely, then the center of percussion is that point in it at which its whole impetus is supposed to be concentrated.

CENTER OF PRESSURE of any surface immersed in a fluid is the point in which the resultant of the pressures of the fluid on the several points meets the surface.

CENTIPEDES AND MILLEPEDES, the popular names of the two orders of Articulate animals which until lately formed the entire class *Myriapoda*. They were formerly classed with insects, which they resemble in their jointed limbs and antennæ, and in their respiratory system, but they have also points of contact with annelid worms, with crustaceans, and with spiders, by which they are marked as a transition group, intermediate between the lower and higher Articulata. Myriapods (ten thousand, and a foot) are elongated worm-like creatures, cylindrical or flattened, and composed of numerous segments, each bearing one or two pairs of jointed legs—those on the anterior segments being modified, as in the Crustacea, so as to form the organs of the mouth. The fang-like, prehensile jaws of the centipede, perforated at their extremities to allow of the passage of the liquid venom into the wound they have inflicted, are thus simply modifications of a pair of legs. The eyes consist of a number of *ocelli*, congregated together on the head, and, with a single exception, are never compound, as in insects. Like the latter, they breathe by means of tracheal tubes, opening by stigmata placed on both sides, behind the insertion of the legs, and kept permanently open by a spiral chitinous fiber. They are unisexual, the organs of generation being, however, differently placed in the two groups, occurring anteriorly in millepedes, and posteriorly in centipedes. The young of many species closely resemble their parents from the time they leave the egg, only with fewer limbs and segments; these, however, increase with each successive molting until the normal number of the adult is reached. Other species, as those of the family *Fulidæ*, undergo, during their period of growth, modifications closely resembling the metamorphoses of insects. Their larvæ at first either are destitute of legs, or have only three pairs situated anteriorly; and it is only after a long series of moltings, extending in some cases over two years, that their maturity is signalized by the appearance of sexual organs.

Centipedes, or "Hundred-Legs," have their segments flattened, and covered with a leathery skin, and have one pair of legs on each segment, the posterior pair being directed backward and elongated so as to resemble

a couple of jointed tails. Their antennæ have not less than fourteen and rarely more than forty joints, while the body segments do not usually exceed twenty. The organs of the mouth are masticatory, and are admirably adapted to the carnivorous habits of the centipede. It feeds principally on insects, seizing them with its powerful prehensile organs, and injecting at the same time its venom into the wound. The bite of the large forms, as *Scolopendra morsitans*, occurring in tropical countries, is exceedingly painful, and is described by those who have suffered from it "as similar to what might be produced by contact with a red-hot iron," giving rise to swelling, throbbing pains, and febrile symptoms. These, however, yield readily to an application of ammonia.

CENTLIVRE, SUSANNA, a dramatic writer, was born in 1667, or perhaps a year or two later, probably in Ireland. Being left an orphan about the age of eleven she went to London, where, at the age of sixteen she married a nephew of Sir Stephen Fox. About twelve months afterward her husband died; and she then married a military officer named Carrol. Carrol was killed in a duel about a year and a half after their marriage, and his widow was left to support herself by her pen and by acting. Her first attempt was a tragedy called the *Perjured Husband*; but almost all her subsequent pieces were comedies, several of which enjoyed very considerable popularity. Her wit and personal attractions also gained her the support of Steele, Farquhar, Rowe, and many others of high position in literature and society. In 1706 she married Mr. Joseph Centlivre, principal cook to Queen Anne, with whom she lived till her death in 1723.

CENTO, a town of Italy, in the province of Ferrara, sixteen miles north by west of Bologna, situated in a fertile plain near the Reno. It is the seat of a bishop, has a cathedral and several fine buildings, and carries on a trade in grain and hemp; but it is chiefly remarkable as the birthplace of the painter Guercino, several of whose works are to be seen in the churches of St. Biagio and the Madonna del Rosario. Pop., 19,000.

CENTO (Latin *cento*, patchwork), a composition made up of passages of other works. The Byzantine Greeks manufactured several out of the poems of Homer, among which may be mentioned the life of Christ by the famous Empress Eudoxia, and a version of the Biblical history of Eden and the Fall. The Romans of the later empire and the monks of the Middle Ages were fond of constructing poems out of the verse of Virgil.

CENTORBI, or CENTURIPA, the ancient *Centuripa*, a town of Sicily, on a rugged mountain in the province of Catania, and twenty miles west-northwest of the city of that name. At a very early period Centuripa was an important town of the Siculi; and through various vicissitudes it succeeded in maintaining its independence until the first Punic war, when it was besieged by the consuls Otacilius and Valerius Messala. In the time of Cicero it was one of the most flourishing places in the island, and had a population of about 10,000. In 1233 it was destroyed by Frederick II. Extensive remains of the ancient city still exist. The new town has a population of upward of 7,000.

CENTRAL AMERICA, as a geographical division, would naturally include the whole stretch of territory from the Isthmus of Tehuantepec to the Isthmus of Darien, which forms the nexus between the two great masses of North and South America; but political arrangements have so affected the use of the name that it only includes the portion corresponding to the five independent North American republics of Costa Rica, Nicaragua, Honduras, San Salvador, and Guatemala, while the Isthmus of Panama is assigned to South America as a part of New Granada, and the Isthmus of

Tehuantepec and the Peninsula of Yucatan are incorporated with North America as parts of Mexico. Central America thus lies between 7° and 18° of N. latitude, extends about 800 or 900 miles in length, and has a varying breadth of from 30 to 300 miles.

CENTRAL CITY, the county seat of Gilpin county, Colo., lies in a narrow valley at the east base of the Snowy Range, forty miles northwest of Denver, on the Colorado Central railroad. Gold-mining is the chief source of its prosperity. The Gregory lode, cropping out near the lower end of the city, was the first discovery of gold made in the State. There are several quartz-mills operated in the place. The city has six churches, three banks, a graded school and an opera house, and the population in 1890 was about 5,000. One daily and two weekly papers are issued.

CENTRAL FALLS, a city of Providence county, R. I., is situated on the Blackstone river, and on the Providence and Worcester, and Boston and Providence railroads, and is extensively engaged in manufactures of curled hair and hair cloth, hosiery and knit goods, cotton and woolen fabrics, leather and leather belting, furniture, carriages, paper boxes, machinery, iron and brass goods. The city contains six churches, one weekly paper, a high school, graded and private schools, several halls, hotels, stores, and public buildings. Population, 9,000.

CENTRAL FORCES are those which cause a moving body to tend toward some point or center, called the center of force or motion. The doctrine of central forces has for its starting point the first law of motion—viz., that a body not acted on by any external force will remain at rest, or move uniformly in a straight line. It follows from this law that, if a body in motion either changes its velocity or direction, some external force is acting upon it. The doctrine of central forces owes more to Kepler and Sir Isaac Newton, of whose philosophy it makes a considerable branch, than to all the rest of the philosophers, though almost all the leading mathematicians have contributed to it. The doctrine of centrifugal forces was first mentioned by Huygens, at the end of his *Horologium Oscillatorium*, published in 1673; but Newton was the first who fully handled the doctrine, at least so far as regards the conic sections.

CENTRALIA, one of the largest cities in southern Illinois, is situated in Marion county, on the Illinois Central railroad, 252 miles from Chicago and 112 miles from Cairo. It is also the terminus of the Jacksonville Southeastern road, and the shipping point for an area of country extended and productive. The city contains two banks, two daily and three weekly papers, ten churches, a high school, and graded schools; also private institutions of learning, a public library, together with stores, hotels, an opera house, public halls, etc. The industries of the city include iron and machine shops, railroad repair shops, nail works, lumber and flour mills, and manufactories of boxes, boots and shoes, wine, meal, and other articles. Pop., 4,762.

CENTRAL INDIA POLITICAL AGENCY, the official name for a group of feudatory states in the middle of India. Roughly speaking, they are bounded on the north by Rájputáná, the North-Western Provinces, and Oudh; on the east by the Chhotá Nágpur division of Bengal, on the south by the Central Provinces, and on the west by Bombay. The total area of the state is not known. Population (estimated), 8,000,000.

CENTRALIZATION, a term which has lately come into general use for expressing a tendency to administer by the central or sovereign government matters which had been previously under local management. The legitimate application is to a state of change from local

to central management—a change in the opposite direction would, on the same principle, be called localization.

CENTRAL PROVINCES, a Chief-Commissionership of British India, comprising an area of 84,078 square miles, and a population returned by the census of 1889 at 10,000,000.

It is thought that in some of the upland basins, tea, coffee and other delicate plants might be raised with success, but the obstacles which have long retarded the settlement of these plateaus still exist, and can only be surmounted by patient and continued energy.

The country is intersected by the Great Indian Peninsular and East Indian Railways. The Great Indian Peninsular Railway from Bombay enters the Central Provinces near Barhanpur, and runs north-east to Jabalpur, where it joins the East India line from Allahábád and Calcutta. A branch of the Great Indian Peninsular Railway, which leaves the main line at Phasáwal in Kandesh, enters the Central Provinces at Wardhá, and runs to Nágpur. A state line is in course of construction to connect this railway with the newly-opened coal-fields of Chándá.

The population of the 19 districts of the Central Provinces, returned as above, is made up as follows:—Hindus, 5,879,950; Mohammedans, 233,247; Buddhists and Jains, 36,569; Christians, 10,477, and "others" (consisting chiefly of Gonds and the original inhabitants of the country before they were driven back by their Hindu conquerors), about 3,700,000.

CENTUMVIRI, among the Romans, were judges appointed to decide common causes among the people, of whom three were chosen out of each tribe. The extent of their powers has not been exactly ascertained.

CENTURION, among the Romans, an officer in the infantry who commanded originally a hundred men (whence the name), but afterwards an indefinite number—the sixtieth part of a legion. Centurions were of two grades, and were chosen by the tribunes. Their duties were to drill the soldiers and to appoint their tasks, and they had power to punish minor offences.

CEOS, the modern Zea or Tzia, an island in the Ægean Sea, belonging to the group of the Cyclades and the eparchy of Syra, 14 miles off the coast of Attica. Its greatest length is about 13 miles, and its breadth about 8. It gradually rises towards the centre, where it culminates in Mount Elias, 1860 feet high. Among its natural productions are lemons, citrons, olives, wine, and honey; and it also exports a considerable quantity of valonia. There were formerly four towns of some importance in the island:—Iulis, about three miles from the north-west shore; Coressia, the harbor of Iulis, with a temple of Apollo Smintheus in the neighborhood; Carthæa in the south-east; and Poieëssa in the south-west. Of these Iulis is represented by the town of Zea, and Carthæa by the village of 'S tais Polais; and traces of the other two can still be made out. In ancient times Iulis was the birthplace of the lyric poets Simonides and Bacchylides, the philosophers Prodicus and Ariston, and the physician Erasistratus; and the excellence of its laws was so generally recognized that the title of Cean Laws passed into a proverb. The present population of the island is about 8000, of which the capital has about 4300.

CEPHALONIA, or CEFALONIA, the ancient *Cephalonia*, an island belonging to the kingdom of Greece, and the largest of those known as the Ionian Islands, is situated on the west side of the mainland, almost directly opposite the Gulf of Corinth. Its extreme length is 31 miles, and the breadth varies from about 20 miles in the southern portion to three or less in the projecting part, which runs parallel with the island of Ithaca, at a distance of about four miles across the

strait of Guiscardo or Viscaro. The whole island, with its area of 348 English square miles, is covered with rocky hills of varying elevation, the main range running from north-west to south-east. The ancient mount Ænos, now Elato, Monte Negro, or the Black Mountain, has a height of 5300 feet, and frequently retains the snow for several months. It is not only the loftiest part of the Sierra, but also the highest land in the whole Ionian group. The name "Black" was given from the darkness of the pine woods which still constitute the most striking feature in Cephalonian scenery, although their extent has been greatly curtailed by fire. On the summit there is still to be seen an ancient altar, surrounded by the bones of former sacrifice. The island is ill supplied with fresh water; there are few permanent streams except the Rakli, and springs are apt to fail in dry summers. In the western part of the island a gulf runs up from the south a distance of about seven miles; on its east side stands the chief town Argostoli, with about 9000 inhabitants, and on the west side the rival city of Lixuri, with 6000. About five miles from Argostoli is the castle of St. George, a building of Venetian origin, and the strongest fortification in the island; and between St. George and the village of Mataxata, where Byron at one time resided, are several large catacombs.

The inhabitants of Cephalonia have all along been extremely active; and no slight amount of toil has been expended in the construction of terraces on the steep sides of the hills. Owing to the thinness of the population, however, but a small proportion of the soil is under cultivation, and the quantity of grain grown in the island is comparatively meagre. The staple is the currant, in the production of which the island surpasses Zante. The fruit is smaller than that of the Morea, and has a peculiar flavor; it finds a market mainly in Holland, Belgium, and Germany. The grape vine is also grown, and the manufacture of wine is a rising industry. The olive crop is of considerable importance, and within recent years the culture of cotton in the low grounds has been successfully attempted.

In the Homeric poems, Cephalonia is mentioned under the name of Same, and its inhabitants, among the subjects of Ulysses, are designated Cephallenes. In the Persian war they took but little part; in the Peloponnesian they sided with the Athenians. The town of Pale was vainly besieged by Phillip of Macedon in 218 B.C., because it had supported the Ætolian cause. In 189 B.C., all the cities surrendered to the Romans, but Same afterwards revolted, and was only reduced after a siege of four months. The island was presented by Hadrian to Athens, but it appears again at a later date as "free and autonomous." After the division of the Roman empire, it continued attached to Byzantium till 1082, when it was captured by Robert Guiscard, who died, however, before he could repress the revolt of 1085. In 1204 it was assigned to Gaius, Prince of Tarentum, who accepted the protection of Venice in 1215; and after 1225 it was held along with Santa Maria and Zante by a succession of five counts of the Tocco family at Naples. Formally made over to Venice in 1350 by the prince of Tarentum, it was afterwards captured by the Turks in 1479; but the Hispanico-Venetian fleet under Benedetto Pessaro and Gonsalvo of Cordova effected their expulsion in 1500, and the island continued in Venetian possession till the fall of the republic. For some time it was administered for the French government, but in 1809 it was taken by the English under Collingwood. Till 1813 it was in the hands of Major de Bosset, a Swiss in the British service, who displayed an industry and energy in the repression of injustice and development of civilization only outdone by the despotic vigor of Sir Charles Napier, who held

the same office for the nine years from 1818-1827. During the British protectorate the island made undoubted advances in material prosperity, but was several times the scene of political disturbances. It retained longer than the sister islands traces of feudal influence exerted by the landed proprietors, but has been gradually becoming more democratic. Under the Venetians it was divided into eight districts, and an elaborate system of police was in force; since its annexation to Greece it has been broken up into twenty demarchias, each with its separate jurisdiction and revenues, and the police system has been abolished.

CERAM, or SIRANG, an island of the East Indian Archipelago, situated to the west of New Guinea, and belonging to the Dutch Government of the Moluccas. Its greatest length is about 200 miles, its greatest breadth about 50, and its area upwards of 6000 square miles. It is divided into two parts, Great Ceram and Little Ceram or Huvamohel, united by the isthmus of Taruno; and, for administrative purposes, the eastern portion is assigned to the residency of Banda, while the western belongs to that of Amboyna. A chain of mountains traverses the island from east to west, and attains in various parts a height of upwards of 8000 feet. The loftiest summit—Nusa Keli—has an elevation of 9500 feet; and others of mark are Salagor, Trier, and Tomache. The most valuable timber trees are the iron-wood and the makila. Rice, maize, cocoa-nuts, sugar-cane, and a variety of fruits are grown; but by far the most important production is the sago palm, which grows abundantly in the swampy districts, especially of Eastern Ceram, and furnishes a vast supply of food, not only to Ceram itself, but to other islands to the east. The Dutch settlers at Amboyna have recently established cocoa plantations at various points, and the Government encourages their formation. The inhabitants are mostly gathered in villages along the coast; they are partly native Alfurocs and partly immigrant Malays, with a considerable mixture of Buginese, Macassars, Balinese, and other races of the archipelago. Christianity has been introduced in various districts, especially along the southern coast, but as yet with but little practical benefit. A baleful influence has been exerted by a secret society called the Kakian Union, to which pagans, Mahometans, and Christians indiscriminately attached themselves; and it has several times cost the Dutch authorities considerable efforts to frustrate their machinations. The total population is estimated at 195,000, of whom the lands on the south coast contain 65,000, the lands on the north coast 40,000, and the south-western peninsula a large portion of the remainder.

CERBERUS, in Greek mythology, the dog which guarded the entrance to Hades, not against incomers, but against whoever might seek to escape. In Hesiod, he is a many-headed monster with a fearful bark, but usually he was represented with three heads and the body of a dog such as haunted battlefields,—sometimes also with the tail of a snake. The same number of heads occurs in other beings connected with the lower world, as in Hecate "triformis" and Hermes "trikephalos." The most difficult of the labors imposed on Hercules was to bring Cerberus to the upper world, and in this he was forbidden by Pluto to use any weapons.

CERDONIANS, a Gnostic sect, founded by Cerdo, a Syrian, who came to Rome about 140, but concerning whose history little is known. They held that there are two first causes—the perfectly good and the perfectly evil. The latter is also the creator of the world, the god of the Jews, and the author of the Old Testament. Jesus Christ is the son of the good deity; he was sent into the world to oppose the evil; but his incarnation, and therefore his sufferings were a mere appearance.

Regarding the body as the work of the evil deity, the Cerdonians formed a moral system of great severity, prohibiting marriage, wine, and the eating of flesh, and advocating fasting and other austerities. Origen attributes to Cerdo the opinion,—which was certainly held by the more famous Marcion, his contemporary and, in some respects at least, his follower,—that there are three first causes—the perfectly good, the perfectly evil, and the imperfect, whom Marcion calls “the just,” and who is the creator of the world and the god of the Jews. Besides the Old Testament, Cerdo rejected also the New, except part of Luke’s Gospel and St. Paul’s Epistles.

CEREALIA, or **CEREAL GRASSES**, so named from Ceres, the plants which produce grain or corn; in other words, all the species of grass (*Gramineæ*) cultivated for the sake of their seed as an article of food. The most extensively cultivated grains are Wheat (*Triticum*), Barley (*Hordeum*), Rye (*Secale*), Oats (*Avena*), Rice (*Oryza*), Maize or Indian corn (*Zea*), different kinds of Millet (*Setaria*, *Panicum*, *Paspalum*, *Penisetum*, and *Penicillaria*), and Durra or Guinea Corn (*Sorghum* or *Andropogon*). Maize has the greatest range of temperature.

CEREBRO-SPINAL FLUID. There is an interval, termed the *sub-arachnoid space*, lying between the two innermost of the membranes of brain and spinal cord—viz., the arachnoid and the pia mater. This space, which is narrow on the surface of the cerebral hemispheres, but is comparatively wide at the base of the brain between the two middle lobes of the cerebrum, and, posteriorly, between the hemispheres of the cerebellum and the medulla oblongata, is occupied by the cerebro-spinal fluid—which fills up the interval between the arachnoid and pia mater, and keeps the opposed surfaces of the former membrane (which is a closed serous sac) in contact. The cerebro-spinal fluid is a clear, limpid, slightly albuminous fluid, having a saltish taste, and a faintly alkaline reaction, and not containing more than 1.5 per cent. of solid matters. It varies in quantity from two to ten ounces, and is said to be most abundant in aged persons. Its chief use is to afford mechanical protection to the nervous centers, and to prevent the effects of external shocks or concussions.

CEREBRUM, **CEREBELLUM**. Cerebrum (Lat. the brain) is sometimes applied to the whole contents of the cranium or skull; but more usually it denotes the upper portion, while the under and posterior portion is called the **CEREBELLUM**, or little brain.

CEREMONY (Fr. *ceremonie*; Lat. *cerimonia*, a sacred rite). Almost any act when performed in a regular, orderly, and formal manner, and when viewed, not with reference to its object, but the mode of its performance, becomes a ceremony. Ceremonies may be divided into four classes: Religious, social, state, and international ceremonies.

CERES, in Mythology, was the Roman goddess of seed and harvest, worshiped jointly with Liber (Bacchus) and Libera (Proserpine).

Her principal festivals were (1) the *Cerealia* (April 12–19), corresponding in the main idea with the Eleusinia, and (2) the *Fejunium Cereris* (October 4), corresponding to the Thesmophoria of Demeter. The *Cerealia* included the spectacle of hunting a fox with a torch attached to his tail. Her temple in Rome had been destroyed by fire, and was rebuilt by Augustus. Claudius attempted to introduce the mysteries of Eleusis into Rome in connection with her worship.

As regards the Greek goddess, the chief interest of her worshipers was concentrated on the myth which told how her only daughter Persephone (Proserpine) had been carried off in a chariot by Pluto, the god of

the lower world, from the fields of Enna in Sicily, where she was gathering flowers; other districts also were assigned for this incident, but the Romans naturally preferred Enna as being the nearest. Demeter wandered over the earth searching for her daughter in vain, in her anguish refusing food or drink, and threatening a famine for mankind, till Zeus agreed to allow Persephone in future to live half the year with her mother on the earth. The other half she must remain with Pluto in the lower world.

CERIGNOLA, a town of Italy, in the south of the Neapolitan province of Capitanata, twenty-four miles southeast of Foggia, pleasantly situated on an eminence which commands an extensive view. The surrounding plain is well cultivated, and produces large quantities of almonds and cotton. Linen is manufactured by the inhabitants. Cerignola is divided into an old and new town, and contains a hospital, a college, and several convents. Here, on April 28, 1503, the Spaniards, under Gonsalvo de Cordova, defeated the French, when the leader of the latter, the Duc de Nemours, was slain. In the neighborhood, to the west of the Lago di Salpi, are the ruins of the ancient Apulian town Salapia. Population about 17,500.

CERIGO, the ancient *Cythera*, one of the Ionian islands, situated at a distance of not less than 150 miles from Zante, but only about eight miles from Cape Malea on the southern coast of Greece. Its length from north to south is nearly twenty miles, and its greatest breadth about twelve; its area is 114 square miles. The general character of the surface is rocky and broken; but streams abound, and there are various parts of considerable fertility. Two caves, of imposing dimensions, and adorned with stalactites of great beauty, are the most notable among its natural peculiarities; one is situated at the seaward end of the glen of the Mylopotamus, and the other, named Santa Sophia, about two hours’ ride from Capsali. The present inhabitants of the island are very badly educated. At a very early date Cythera was the seat of a Phœnician settlement, established in connection with the purple fishery of the neighboring coast. Population, 10,000.

CERIGOTTO, an island of Greece, belonging to the Ionian group, and situated between Cerigo and Crete. It was anciently known as *Ægilia*, and is now called by its inhabitants Lius. With an area of about ten square miles it supports a population of about 300, who are mainly Cretan refugees, and in favorable seasons exports a quantity of good wheat. It was long a favorite resort of Greek pirates.

CERINTHUS was the founder of one of the earliest heretical sects of the Christians. He was brought up in Egypt, but removed to Asia Minor, where he propagated his doctrines. He flourished, according to Eusebius in the time of Trajan (98–117). Irenæus relates a story which represents him as a contemporary of the apostle John. He says that John, the disciple of the Lord, when in Ephesus, went to bathe, and when he saw Cerinthus inside, he leapt from the bath without bathing, crying out: “Let us flee, lest the bath fall, for Cerinthus, the enemy of the truth, is within.” Irenæus heard this story from some people who heard it from Polycarp, who may have heard it directly, or more likely at second-hand, from some of the friends of St. John.

CERRETO, a town of Italy, in the Neapolitan province of Benevento, on the Cusano. It is well-built, is agreeably situated on the slope of Monte Matese, and has a fine cathedral, collegiate church, and seminary. With Telese it forms the see of a bishop. There are several cloth manufactories, and excellent wine is produced in the neighborhood. The town suffered greatly from the

plague in 1656, and from an earthquake in 1688. Population, 7000.

CERRO DE PASCO, a town of Peru, in the department of Junin, on the table-land of Bombon, 14,280 feet above sea-level. The houses are ill-built, and there are no public buildings of importance. Living is dear, the neighborhood is unfertile, and the climate is cold and stormy. The silver mines, discovered in 1630, are numerous, but not so productive as in past times. Population, consisting chiefly of Indians and a mongrel race, about 13,000.

CERRO GORDO, a plateau in Mexico, on the route from Vera Cruz to the capital. Here, on April 18, 1847, the United States troops totally defeated the Mexicans.

CERTALDO, a market-town of Tuscany, on the right bank of the Elsa, in the province of Florence, and fifteen miles southwest of that city. It was the birthplace of Boccaccio, whose house, repaired in 1823 by the Marchesa Lenzoni Medici, is still to be seen. One of the rooms contains, besides some ancient furniture, the remnants of the poet's tomb, his autograph, and his picture. In December, 1875, a monument to his memory was erected by the authorities of the town. Population about 2,000.

CERTIORARI, a writ for the purpose of removing the record of a case from an inferior to a superior tribunal.

CERUMEN, yellow waxy matter secreted by certain glands lying in the external auditory canal, or the passage that leads from the external opening of the ear to the membrane of the tympanum. It is popularly known as ear-wax.

CERUSE, or WHITE-LEAD, the basis of white oil-paint, is a *carbonate of lead*.

CERVANTES-SAAVEDRA, MIGUEL DE, the author of *Don Quixote*, was born at Alcalá de Henares, the ancient *Complutum*, a small town in the province of New Castile, in 1547. The family of Cervantes, which had for some generations attached to their patronymic the name of Saavedra, was of respectable if not noble origin. The patriotic zeal of some later biographers has even claimed for it affinity to the royal blood of Castile. The cradle of the race was Galicia, from which province the ancestors of Cervantes emigrated at an early date. Members of the family accompanied Ferdinand III. on his expedition against the Moorish kingdom of Seville, and obtained a share of the conquered territory. The grandfather of Miguel was Juan de Cervantes, a knight of some distinction, who held the office of *corregidor* of Ossuna at the beginning of the sixteenth century. His son Rodrigo married in 1540 Leonora de Cortinas, a lady of Esquivias, of birth equal to his own but, it is presumed, of no greater fortune. There were four children of the marriage, two sons, Rodrigo and Miguel, and two daughters.

In 1568 there came to Madrid — charged with a message of condolence from the Pope to Philip II., on the death of his son Don Carlos, and with sundry complaints respecting default of allegiance to Rome — the Cardinal Acquaviva, who, though only in his twenty-fifth year, had already earned a name for culture and a good disposition to letters. With him Cervantes took service as a page, — an employment held to be no humiliation in that age even to young men of noble birth, — returning in the suite of his patron to Rome by way of Valencia, Barcelona, and the south of France. Apparently the post was not to the taste of one in whom the sight of Italy — then for the greater part a fief of Spain — awakened more of warlike than of poetic ambition. In the beginning of 1570 the cardinal's page exchanged his livery for the soldier's uniform, enlisting in

the company of the famous Captain Don Diego de Urbina of the regiment of Don Miguel de Moncada. It was the period when the military glory of Spain was at the highest, and the profession of arms the surest road to advancement. The first campaign of Cervantes was made at sea, his regiment being engaged in the expedition which, in the summer of 1570, under the orders of the Papal general, Marco Antonio Colonna, made an ineffectual attempt to relieve the Island of Cyprus, then hotly besieged by the Turks. The capture of Nicosia by the Mahometans, and the fall of the island, which spread consternation throughout Christendom, gave rise to the memorable Holy League against Selim II. Through the exhortations of the Pope, Pius V., Spain and Venice were induced to lay aside for a time their old dissensions and to unite with Rome in an attempt to bridle the Ottomans, then in the flush and vigor of their genius. The pact between these Christian powers was formally ratified on the 25th of May, 1571, the Confederates binding themselves to "make perpetual war" not only against the Turks but against the Moors of Algiers, Tunis, and Tripoli.

The generalissimo whom the unanimous voice of the allies called to the command of this fleet — the most formidable which had ever been assembled in the Mediterranean — was Don John of Austria, the natural son of Charles V., then in his twenty-fourth year, — a youth not more recommended by his near connection with the Spanish king than by his brilliant talents, amiable character and great popularity.

The armada, after rendezvousing at Messina, put to sea finally in quest of the enemy on the 15th of September. The company in which Cervantes still served as a private soldier was embarked in the galley "La Marquesa," commanded by Francisco San Pietro. After relieving and provisioning Corfu, Don John came up with the Turkish fleet on the 7th of October, drawn up in order of battle in the Gulf of Lepanto. The Christians advanced in three divisions, their right commanded by the Genoese admiral, Juan Andrea Doria, the centre under Don John himself, and the left under Agostino Barbarigo, the Venetian Proveditore; the Marques de Santa Cruz, with his squadron, being in reserve. The "Marquesa" was on the left wing, having on board Miguel de Cervantes, who lay in his cabin ill of a fever. On coming into action, his ship being in the van of the squadron, Cervantes' captain and comrades besought him to remain quietly in his bed, but he, according to the sworn testimony of ear-witnesses, asked them what would they think of him if he did not do his duty, and declared his resolve to die fighting for God and his king, rather than to remain under shelter and take care of his health. His entreaties to be allowed to share in the fighting having been granted, Cervantes was stationed with twelve soldiers under his command in what was reckoned the post of greatest danger, namely, in the boat which hung by the galley side, most exposed to the enemy's fire. Here he performed his part in that glorious day's work so valiantly as to attract the notice of his commanders, even of Don John himself. The vessel immediately opposed to the "Marquesa" was the galley of the Capitan Pasha of Alexandria, who commanded on the Turkish right, bearing the royal standard of Egypt. After a stubborn resistance, and the slaughter of 500 of her crew, she was compelled to surrender, her fate involving the flight or capture of the entire squadron, and contributing materially to the final defeat of the Turks. On their right wing the Christians were less successful, — Marco Antonio Colonna having to encounter the celebrated renegade, Uluch Ali, a sea-captain of great skill and experience, to whose good conduct and abilities Cervantes himself, with character-

istic generosity, bears witness. The issue was highly honorable to the allied arms.

The victory at Lepanto, though barren of results, and spoilt by the contentions among the Christian leaders, broke the spell of Turkish invincibility at sea, and is to be reckoned among the most glorious feats of arms ever performed by Spain when at the zenith of her greatness. In this battle, to the remembrance of which he ever fondly clung, which he loved to speak of as the proudest event of his life, Cervantes was severely wounded — receiving two gun-shot wounds in the chest and one in the left hand, which was maimed and rendered useless “for the greater glory of the right,” as its owner said, holding this defect ever after to be his greatest ornament. Lepanto was to Spain what Salamis was to Athens. All Europe rang with the fame of “the man sent from God whose name was John,” according to the fervent exclamation of the grateful Pope when he heard the news of the victory; and the exploits of Doria, Colonna, and Santa Cruz were on all men’s tongues. But while generals and admirals are now forgotten, it is a striking evidence of the power of genius to override even the traditions of patriotism and of warlike glory that of all the memories which survive of this once renowned day, that which remains green and flourishing is of the private soldier who fought in the “*Marquesa*,” of him whom his countrymen love to designate as *El Manco de Lepanto*. It would be absurd to attribute to the single arm of Miguel de Cervantes any appreciable share in the event of that day, but making all allowances for the partiality of his biographers, there can be no reason to doubt that Cervantes did earn a very extraordinary amount of renown for his behavior in the battle. As a private soldier he was not debarred, according to the fashion of the times, from receiving from his superiors those marks of consideration due to men of good birth and breeding; yet the extraordinary favors bestowed on him by Don John and the other leaders, the letters of credit which they gave him on his return to Spain, the numerous references to him by his contemporaries, and the influence he afterwards exercised among his fellow-captives at Algiers, are sufficient to prove that at this early period of his life Cervantes had attained too much distinction over and above what he had won as a man of letters.

After the battle of Lepanto the lateness of the season compelled Don John to return to Sicily, leaving the Turks leisure to recover from their losses and to recruit their strength. The wounded were tended at Messina, among whom Cervantes was visited in the hospital by Don John in person, receiving upon his recovery a special increase of pay to the amount of three crowns a month. From the company of Moncada our soldier was now transferred to that of Don Ponce de Leon, in the *Tercio de Figueroa*, the most distinguished of all the Spanish regiments of that period — of that famous infantry which sustained the Spanish dominion over half Europe, making, in the words of the chronicler, “the earth tremble with their muskets.” The further enterprises of the League at sea were checked by the growing dissensions between Spain and Venice, and also by the quarrel now on foot between the former nation and its old rival France. The jealousies between the confederate princes extended to their commanders, and it was in vain that Don John urged upon his allies the necessity of striking another blow at the Turk before he had time to repair his shattered forces. It was not until the 9th of August, 1572, that the Christian fleet again set sail for the scene of its great exploit of the year previous. In this second campaign, through the supineness of the leaders, perhaps from some incapacity of the generalissimo, scarcely fitted by age or force of character

to control so vast and incongruous a host, but chiefly from the superior skill and vigilance of the Turkish commander-in-chief, a post now held by Uluch Ali, the armada did nothing more than make a feeble demonstration against the enemy’s fleet, which was found at anchor in Navarino Bay. Cervantes, who has given a minute account of this inglorious affair in his story of the captive in *Don Quixote*, served in this expedition in the squadron commanded by Antonio Colonna. Returning to Messina to winter, the armada was next year dispersed in consequence of the dissolution of the Holy League, the Venetians having concluded a separate peace with the Turks. In 1573 Cervantes took part in the expedition of Don John against Tunis and in the capture of the Goleta — his wounds being still unhealed, as we learn from his letter to Mateo Vasquez. That winter he was in garrison in Sardinia, and in the next spring in Lombardy, being ordered to Messina in August, 1574, and thence to Naples. On the 15th of June, 1575, he obtained leave of the viceroy, the Duke de Sesa, to visit Spain, and thus ended the first portion of his military career, with small profit but with much honor. During his five years’ active service by land and sea, however, Cervantes had acquired that knowledge of men and life which was so useful to him in after years. He had visited the most famous cities of Italy, and had stored his mind with impressions of her art and literary culture, traces of which are to be found in all his writings, even to the extent of making him liable to the charge of introducing Italian idioms into his style. Of his intercourse with Italian men of letters there is no evidence, though his works furnish abundant testimony of his familiarity with the best models of Italian literature.

That he had won the respect and esteem of his commanders as a good soldier is proved by the highly flattering letters which he received from Don John, recommending him to the king for promotion as a man of singular merit and of great services; also from the viceroy of Naples, speaking of him as a worthy but unfortunate soldier who, “by his noble virtue and temper, had secured the good will of his comrades and officers.” Furnished with these letters, which in the event were to prove to him so fatal a possession, Cervantes, with his brother Rodrigo, embarked at Naples in the galley “*El Sol*.” On the 26th of September, when off the coast of Minorca, his vessel fell in with a squadron of Algerine cruisers under the command of the dreaded pirate captain, Arnaut Mami. Attacked by three of the enemy’s ships, the Spanish galley, after an obstinate resistance, in which Cervantes bore a conspicuous part, was forced to surrender to overwhelming odds, and was brought in a prize to Algiers. On the division of the prisoners Cervantes fell to the lot of Déli Mami, a Greek renegade, noted for his ferocity and greed among the Algerines. The letters of Don John and the viceroy of Naples found on this Spanish soldier served but to mislead his captors as to his true rank, and therefore to stimulate their cupidity and to aggravate his sufferings. Being supposed to be able to purchase his liberty at a high price, Cervantes was guarded with special care, and that he might be induced the more quickly to ransom himself, he was loaded with chains and treated with extraordinary rigor. According to the testimony of Father Hædo, in whose curious and important work on the *Topography of Algiers*, published in 1612, we have the most valuable authority for this period of Cervantes’ life, and who was an eye-witness of the cruelties practiced in this pirates’ den upon the Christian slaves, the captivity of Cervantes was one of the hardest ever known in Algiers. It was borne with a courage and constancy which, had there been nothing

else to make his name memorable, must have sufficed to rank Cervantes among the heroes of his age and country.

The captivity of Cervantes in Algiers lasted five years, during which period he never ceased to plot schemes of deliverance, which, however daringly conceived and skillfully planned, were doomed to be always foiled by accident or by treachery. On such occasions he was invariably the first to come forward to shield his associates and to take the whole blame upon himself, rendering himself liable to the barbarous punishments then inflicted by the Algerines upon such of their slaves as sought to escape from their chains. Twice was Cervantes brought into the king's presence, with a rope around his neck, to be hanged. Once he was ordered two thousand blows with a stick, the penalty being remitted at the last moment only through the prayers of the other captives. The king or viceroy of Algiers at this time was Hassan Pasha, a Venetian renegade, whose name was a terror throughout Christendom. Cervantes himself in *Don Quixote* calls him "the worst of the apostate race," and "the homicide of human kind." Hædo pronounces him "the most cruel tyrant of all those who have been kings in Algiers." Over this monster, who had purchased Cervantes from Déli Mami for 1500 crowns, our hero seems to have exercised an extraordinary influence. Though repeatedly menaced with death in the most horrible forms, and condemned to witness the torture and mutilation of his companions, Cervantes never actually suffered any ill-treatment in person, beyond being fettered, nor was ever abused by an ill-word, as he himself has borne testimony in *Don Quixote*. For this exceptional immunity it is not easy to account, even on the theory that his master took him for a person of greater consequence than he really was, and we must attribute it to the extraordinary influence acquired by Cervantes over the other captives, and to the respect engendered by his magnanimity and daring.

In the meantime, while the captive was wasting his heart away in chains and in fruitless struggles for liberty, his friends in Spain were not neglectful of his condition. His mother and her daughters raised a sum of 500 ducats with the assistance of friends, and entrusted the money to the hands of Father Juan Gil, the Redemptorist, who embarked for Algiers in May, 1580. Hassan Pasha, however, would abate nothing of his demand, which was 1000 ducats, and threatened to take Cervantes with him to Constantinople, whither he was now recalled on the expiration of his term of government. Cervantes was actually embarked and chained to his place at the oar, when, finally, through the pious zeal of the good friar Juan Gil, aided by the liberality of some Christian merchants of Algiers, the sum required was made up. After a little delay in Algiers rendered necessary to clear himself of some false accusations made against him by his old enemy, Blanco de Paz, Cervantes had at last the joy of arriving, after a long captivity, safe and sound in his native country, landing in Spain towards the close of the year 1580.

By the end of 1583 Cervantes appears to have quitted the profession of arms and returned to literature, being now in his 36th year. About this time he wrote *Galatea*, a prose pastoral interspersed with lyrics, inspired, according to tradition, by love of the lady he was then courting, and who became his wife. Poor as the verse is in *Galatea*, it secured for Cervantes a place among the chief poets of the age, and there is evidence to show that it was held in esteem, even out of Spain, before and after the appearance of *Don Quixote*.

On the 12th of December, 1584, Cervantes added to his happiness if not to his fortune by a marriage with Doña Catalina de Palacios Salazar y Vozmediano, a

lady of good family of Esquivias. The settlement on his wife of a hundred ducats, supposed to be one-tenth of his estate, and the inventory of his effects taken at this time, among which are included "45 hens, some chickens, and a cock," prove that the bridegroom was in but indifferent circumstances, even for a poor *hidalgo* of the time. Of the lady the records give us scarcely a glimpse, and indeed for some years after his marriage the life of Cervantes is wrapt in obscurity. All that is known is that he wrote poetry and won many friends by his good nature and genial humor. He wrote for the stage also for a living, producing between twenty and thirty plays, chiefly comedies, of which only two survive, *La Numancia* and *El Trato de Argel*. There seems to be no reason to doubt Cervantes' own statement that as a playwright he gained considerable applause, and it has been proved that the payment he received was quite as high as that given to Lope de Vega. August Schlegel has assigned high rank to *La Numancia* as one of the most striking and original of modern tragedies, and *La Confusa*, a comedy now lost, is spoken of with much complacency by its author. The gifts of Cervantes, however, were not those of the dramatist, and such fame as he had begun to win paled before the rising star of that "monster of nature," Lope de Vega. Once more disappointed in his hopes of a livelihood, and having now to support his wife, his widowed sister, and his natural daughter, Cervantes was forced to seek for bread by other means than literature. For twenty years—the darkest period of his life—he ceased to write, or at least to publish. The poor crippled soldier had to drink of a cup even more bitter than loss of liberty among the Moors. A veil hangs over this portion of his career, which his countrymen, for their own sake no less than for his, are not too eager to lift, hiding, as it is only too certain that it does, penury, rags, almost beggary, misery of every kind except shame. Throughout all these trials what is known of Cervantes proves him at least to have retained undimmed his cheerfulness of spirit, his rare sweetness of disposition and faith in humanity, "as one in suffering all that suffers nothing."

The four years succeeding 1598 are wholly a blank in the life of Cervantes. Tradition assigns to this period the visit to La Mancha where occurred that new trouble of which *Don Quixote* is supposed to be the vengeance. The story is, that Cervantes had a commission from the prior of St. John to collect his tithes in the district of Argamasilla, and that while he was employed in this ungrateful function the villagers set upon him, and after maltreating him threw him in prison, his place of imprisonment being a house still standing called *La Casa de Medrana*. Here, according to a general consensus of opinion, was conceived, if not written, the first part of *Don Quixote*, conformably to what the author says in the prologue of this "child of his wit" being "born in a gaol."

The First Part of *Don Quixote*, begun, according to internal evidence, before the death of Philip II., was now ready for the press. The date is the same which the majority of Shakespearian critics have assigned to the first appearance of the second perfect *Hamlet*; nor is this the only coincidence between the lives of these two great contemporaries. A patron being in that age as necessary to an author as a publisher, Cervantes with some difficulty found one in the Duke de Bejar, a nobleman of high rank and honor, ambitious of the name of Mæcenæ. The tradition which tells how the duke's scruples at connecting his name with a book of so novel a character and equivocal a purpose were surmounted is probably well founded. Instigated, it is said, by his confessor, who scented heresy, or at least a dangerous

humor, in this book with a strange name, the Duke de Bejar withdrew the promise of patronage he had given and would not accept Cervantes' dedication. The author, however, begged hard for permission to read a chapter of his story before the duke, and pleased him so well that his objections were overcome. The license for publication was obtained on the 26th September, 1604, and in the beginning of the next year the first part of *Don Quixote* was printed at Madrid by Juan de la Cuesta, and published by Francisco de Robles, to whom Cervantes had sold the copyright for ten years.

Although certain great literary personages, and some of Cervantes' own friends, from suspicion that they were included in the satire or from jealousy of his success, professed to sneer at the book because of its vulgar style, its unbecoming subject, and its bizarre title, there can be no doubt of the extraordinary popularity achieved by *Don Quixote* on its first appearance. No fewer than six impressions of the first edition of 1605 are extant of which two were issued at Madrid, two at Valencia, and two at Lisbon. There had appeared up to that date no book since the invention of printing which had so many readers. To that artificial age, reared in the insipid extravagances of the successors of Amadis, *Don Quixote* was as the dawn of a new revelation. The humor, equally simple and deep, the easy, careless grace of the narrative, the fine wisdom and tenderness, the true charity, of this book which professed to be a burlesque of romances of chivalry, were qualities as rare as they were delightful in Spanish literature. Even those who missed the allegory and were insensible to the satire could not but enjoy the story with its fresh and lively pictures of national life and character. That which has become, to use the phrase of Sainte-Beuve, "the book of humanity," was no less successful in its age as a book of popular recreation. The author himself was probably amazed at his own success. Like his great contemporary, Shakespeare, while careful of his lesser works, he seems to have abandoned his master-piece to the printers with scarcely a thought of his literary reputation. All the first editions of *Don Quixote* swarm with blunders of the most extraordinary kind, proving that Cervantes could never have revised the printing, even if he had looked through his manuscript before committing it to the press. He is made to forget in one chapter what he had written in another. He confounds even the names of his characters, calling Sancho's wife Theresa in one place and Maria in another — the very blunders of which he afterwards accused his enemy Avellañeda. He makes Sancho ride his ass immediately after it has been stolen by Gines de Passamonte, and bewail its loss when it had been recovered. He confounds time, place, and persons, and abounds in inaccuracies and anachronisms, to the distraction of his readers, the perturbation of his critics, and the serious grief of his admirers. The style of this first part of *Don Quixote*, in spite of occasional passages of beauty which are among the models of the Castilian tongue, is loose, slovenly, and inartistic. Even in the second edition, published in 1608 and revised by the author, a great many patent blunders were suffered to stand, over which Cervantes himself makes merry in the second part. All this is unfavorable to the theory which some critics have formed that there was a purpose in the book other than what appears on the surface. There is no reason to doubt Cervantes' own declaration, several times repeated, that in writing *Don Quixote* he had no other design than to destroy the credit of those romances of chivalry whose reading was so pernicious to the taste and morals of the age, and to furnish "a pastime for melancholy and gloomy spirits."

In one sense *Don Quixote* is indeed a satire; but the

folly it ridicules are those common to all humanity and to every age, and the satire is of that rare kind which moves not to depreciation but to love and pity of the object — to sympathy rather than to contempt, and to tears as well as laughter. Don Quixote and Sancho Panza are permanent types individualized. They are as true for all times as for the sixteenth century — for all the world as for Spain.

The fame acquired by the publication of the first part of *Don Quixote* does not appear to have contributed materially to the improvement of the author's fortunes. He moved from Valladolid at Madrid, whither he had followed the court, with but little improvement in his worldly circumstances, supported chiefly by a pension from the archbishop of Toledo, and casual gratuities from his other patron, the Count de Lemos. In 1608 was published the second edition of the first part of *Don Quixote*, with some corrections and additions by the author. The next year, following the fashion of the times, he entered as a lay brother into the Oratory of Cañizares, together with Lope de Vega, Quevedo, Espinel, and many other of his contemporaries and friends. In 1610, the Count de Lemos was appointed viceroy of Naples, and Cervantes seems to have been indulged with some promises of being made his secretary, but his advanced age and his dependent family were made the pretext for his being passed over in favor of his rival and pretended friend, Leonardo Argensola. In 1613, he gave to the world his *Novelas Exemplares*, some of which had been written many years before — a collection of tales of very various character, in a style till then unknown in Spain, owing little beyond their form to the Italian models. These stories, undeservedly neglected out of their native country, must be reckoned as second in merit among Cervantes' writing, and even superior to *Don Quixote* in elegance of style.

In his dedication of the *Novelas* to the Count de Lemos, Cervantes speaks of being engaged on several other works, among them the second part of *Don Quixote*; and in the prologue, which contains some interesting details of his biography, he gives this portrait of himself in his 65th year: — "Of aquiline features, chestnut hair, a smooth and open forehead, with cheerful eyes, a nose curved though well proportioned, long mustaches, the beard of silver (which twenty years ago was of gold), the mouth small, the teeth not much, for he has but six, and those in bad condition and worse placed for they have no concert one with another; the body between two extremes, neither large nor small, the complexion lively, rather white than brown, somewhat crooked in the shoulders, and not very light of feet — this, I say, is the author of *Galatea* and of *Don Quixote de la Mancha*." Upon this description of his person — to which it may be added that he stammered in his speech and had lost the use of his left hand by the wound received at Lepanto — has been founded that ideal portrait, first designed by the English engraver Kent for Lord Carteret's edition of 1753, and since then ignorantly copied and repeated in Spain and everywhere as the true image of Miguel de Cervantes.

In 1614 was published the *Viage al Parnaso*, which with all its faults may be said to be the most successful of our author's essays in verse. It is a burlesque poem, professedly in imitation of one with the same title by the Italian, Cesare Caporali, but having little but the name in common with its predecessor.

The first part of *Don Quixote* had brought him fame, but nothing more. Before the appearance of the second part, the plan of which had been freely announced to his friends for some time previously, Cervantes was destined to encounter perhaps the strangest of the many crosses with which his pitiless evil star teased him to the

end of his troubled and painful life. He had seen, while in the flush of manhood, his dream of soldiership dispelled by a cruel captivity. He had experienced the overthrow of all his hopes of civil preferment. He had been subject to every kind of mortification in his literary ambition. He had been jostled out of the arena by his rivals in poetry and in the drama. When old, infirm, and destitute, his genius had at last found in *Don Quixote* its proper field of employment and something like a fitting recognition. But even here he was not to be left undisturbed. The ill-fortune which never ceased to make him its mark was able to send a shaft through this his strongest side, which poisoned all his hard-earned triumph and vexed him to the grave. The story of the false second part of *Don Quixote*, published under the name of Avellaneda, is one of the strangest in literary history, the mystery of which, though it has occupied many volumes, is not yet wholly unravelled. It is sufficient here to say that after it was well known that Cervantes was employed upon and had nearly completed his second part of *Don Quixote*, there appeared at Tarragona in 1614 a book pretending to be a continuation of the knight's adventures, by Alonso Fernandez de Avellaneda, a native of Tordesillas. The manifest object of this impudent fabrication was to malign the character of Cervantes, to destroy the credit of his book, and to deprive him of the fame and profit which he expected to derive from its completion. In a preface, full of curious malignity, evidently arising from some cause deeper than literary envy, Cervantes was reproached in the grossest terms with his infirmities and misfortunes, even with his wounds,—sneered at as one "with more tongue than hands,"—reviled as old, poor, and without friends,—branded as envious and discontented, a calumniator of great men, and an evil-speaker even of the Church and the Holy Office. In the body of the book, under the pretence of carrying on the story, every opportunity is taken to spoil it, by degrading the characters and giving a coarse turn to the incidents. Don Quixote is debased into a wild lunatic, who ends his days in a mad-house; Sancho is turned into a dull buffoon and his humor into brutal gluttony. In place of the witty and beautiful Dorothea we have the gross wench Barbara; and the graceful episodes of the original are represented by a string of dreary and vulgar adventures, without life, color, or probability.

Apart from the spirit of malice, the book is so completely without dignity or consistency that it is clear the writer did not possess the power of comprehending the genius he at once basely libelled and meanly attempted to supplant. Nothing in viler taste has ever disfigured the literature of any nation, and it is greatly to the scandal of Cervantes' countrymen, nor the least of the injuries they have done him, alive and dead, that they have suffered such a book to be reprinted and to retain a place in their national collections. The false *Don Quixote*, in which Le Sage, and even some later critics, both French and Spanish, have pretended to see merits equal if not superior to those of the true, is now remembered only by Cervantes' perhaps too frequent references to it in the later chapters of his own book, and has little interest except in connection with the mystery of his life. The identity of Avellaneda is a problem which has greatly exercised the Spanish critics. The weight of opinion is in favor of its being the disguise of the notorious Fray Luis de Aliaga, the low-born confessor and minion of the Duke de Lerma, who was high in power during the reign of Phillip III. Of all whose names have been suggested as the probable author of the spurious *Quixote* Aliaga is the only one who fulfills the required conditions. He was a Dominican, a preacher and an Aragonese. He was an intimate friend of Lope

de Vega, whose cause he openly espoused. He was in the confidence of the Holy Office, and may be suspected of not being well-disposed to Cervantes' patron, the archbishop of Toledo, whom he succeeded as Inquisitor-General. He was known to be of a rancorous and envious spirit, who had written more than one pseudonymous libel, and was himself the mark of frequent caricatures and lampoons. Lastly, it has been proved that, before the appearance of *Don Quixote*, Aliaga's well-known nickname was Sancho. There was much in the book of Cervantes to give such a man offence, even whether such offence was intended or not,—in his person, his character, his office, and his religion. That as Avellaneda he found assistance among some of the writers of the period, rivals of Cervantes and jealous of his fame, is very probable; and there is only too much reason for suspecting that the great Lope de Vega himself was one of Aliaga's allies. Although Spanish writers are slow to admit that the relations between the two illustrious contemporaries were otherwise than friendly, and although on the side of Cervantes there never was any other than the spirit of perfect courtesy, loyalty, and magnanimity which became his own noble nature, recent researches have proved that by Lope de Vega these feelings were not honestly reciprocated. He who was called by his own familiar friend Alarcon "the universal envier of other men's needs" is known to have regarded with jealous eyes the sudden popularity achieved by his despised competitor in *Don Quixote*.

At the close of 1615 Cervantes published his own second part, and from that moment the other was forever blotted from the world's memory. This second part, though bearing marks of haste in the concluding chapters, belies, according to the judgment of the best critics, the opinion of the author himself as expressed through the mouth of the Priest, that second parts are never good. Although written in old age it contains at least as much of the glow and warmth of imagination as the first, while it is even superior in invention. There is more harmony in the construction, more correctness if not more vigor in the style, with fewer distractions and digressions. The author has more confidence in himself and more love of his work. His hero is more consistent in his madness, Sancho more pleasant in his sanity. Both master and man, especially the latter, while still true to their character, have developed into an ampler and richer nature. They have evidently advanced in their creator's favor, and have more pains taken with their behavior. The knight is more lovable, the squire more humorous; and the whole treatment of the story, with its vivacity and variety, its easy flow of narrative, and its masterly and pathetic close, is worthy of the happy genius of which it is the crown and full development.

By this time the fame of Cervantes had spread through many lands. Numerous editions of his *Don Quixote* had been printed, either in its original or in translation, thus realizing the author's prediction that there would be no nation or language to which his book would not be carried. According to the interesting story told by the archbishop of Toledo's secretary, in his approbation appended to second part, dated February, 1615, foreigners of distinction, when they visited Madrid, made it their first business to enquire after the author of *Don Quixote*. To a party of French gentlemen, members of the suite of the ambassador, the Duc de Mayenne, who were anxious to learn of the condition and mode of life of the celebrated writer, the secretary of the archbishop was obliged to respond that "he who had made all the world rich was poor and infirm, though a soldier and a gentleman." The man who was the delight of his age and destined to be the chief glory of his country was in-

deed still in great misery, depending on alms for his subsistence, and now in his sixty-ninth year stricken by a mortal disease. In the dedication of his second part of *Don Quixote* to the Count de Lemos, Cervantes speaks of his broken health and approaching end, still with unabated courage and cheerfulness. His last work, not published till after his death, was *Pericles and Sigismunda*, a romance of love and adventure after the model of Heliodorus, on which he bestowed great pains and singular affection, declaring that it would be either the best or the worst of his books. The dedication to the Count de Lemos is written with an astonishing gaiety and spirit, though it announces that the author had yesterday received extreme unction, and had "one foot in the stirrups," waiting for a summons. About this time must have occurred this adventure, which is so pleasantly told in the prologue, of the meeting with the student near Toledo, when our author, in a grievous state from dropsy, was returning from a visit to his wife's family at Esquivias, at the close of which he wrote:—"And so, farewell, humors; farewell, my gay friends, for I feel myself dying, and have no desire but soon to see you happy in the other world."

On the 4th of April he entered the order of the Franciscan Friars, whose habit, following the fashion of the period, he had assumed three years before, and on the 23d of that month he ended, in all serenity and cheerfulness, his life of many troubles. In the same year, and nominally on the same day, though really ten days later, allowance being made for the difference of calendars, died William Shakespeare in England. Cervantes' body was buried humbly at the expense of his religious order in the convent of the Trinitarian Nuns in the Calle de Humilladero, of which community his daughter Isabel was a professed member. In 1633 the nuns moved to a new site in the Calle de Cantarrenas, and having exhumed and brought away their dead with them, the bones of Cervantes were mingled with others in a common ossuary, so that Spain, who had shown herself so careless of him in life, has lost all trace of him in death. So closes a record as glorious and as calamitous as any in literary history, of one of the world's greatest benefactors, whom the world knew not—of the best of all Spaniards, the very type and perfect embodiment of the highest Castilian nature, whom his country starved and who has made her immortal.

The language of eulogy has been exhausted over that work of Miguel de Cervantes which for two hundred and fifty years has been the delight of mankind in a degree such as no other book has ever approached. There is nothing to add to the tribute which the critics of all countries have joined in paying to the wisest, tenderest, and deepest of humorists.

CERVIA, an episcopal town of Italy, with a port on the Adriatic, in the district of Ravenna, and 12 miles S.E. of the city of that name. In the vicinity are the extensive salt-works of Valle di Cervia. Population about 5700.

CESARI, GIUSEPPE, called Il Cavaliere d'Arpino (being born in or about 1568 at Arpino, and created a "Cavaliere di Cristo" by Pope Clement VIII.), also named Il Giuseppino, an Italian painter, much encouraged at Rome and munificently rewarded. Cesari is stigmatized by Lanzi as not less the corrupter of taste in painting than Marino was in poetry; indeed, another of the nicknames of Cesari is "Il Marino de' Pittori" (the pictorial Marino). There was spirit in Cesari's heads of men and horses, and his frescoes in the Capitol (story of Romulus and Remus, &c.), which occupied him at intervals during forty years, are well colored; but he drew the human form ill. His perspective is faulty, his extremities monotonous, and his

chiaroscuro defective. He died in 1640, at the age of seventy-two, or perhaps of eighty, at Rome.

CESAROTTI, MELCHIORE (1730-1808), an Italian poet, born at Padua in 1730, of a noble but impoverished family. Cesarotti is best known as the translator of Homer and Ossian. Much praise cannot be given to his version of the *Iliad*, for he has not scrupled to add, omit, and modernize. Ossian, which he held to be the finest of poems, he has, on the other hand, considerably improved in translation; and the appearance of his version attracted much attention in Italy and France, and raised up many imitators of the Ossianic style.

CESENA (Lat. *Cæsena*, or *Cæsenia*), an episcopal city of Emilia, in the province of Forlì, a station on the railroad between Bologna and Ancona, gives its name to a "circondario" and to two subdivisions or "mandamenti" of the same. A very fertile region, it makes good white wine of some reputation, rears silk-worms to some extent, and has some sulphur mines, lignite, and specially good brick clay; but its principal source of wealth is its hemp, deemed the best in the north of Italy. The city (15 miles E. of Forlì, 25 N. of Rimini, 17½ S. of Ravenna) has 8000 inhabitants, and lies where the Apennine melts into the plain, at the foot of the Monte Garampo. The little city has an interesting history of its own, full of eventful changes. It fell in the 4th century under the tyranny of the Malatesta family, one of the worst races of the Italian mediæval tyrants. But it was perpetually rebelling, and occasionally recovering its liberty and autonomy. Dante, in the 27th canto of the *Inferno*, characterizes Cesena as living midway between tyranny and freedom, even as she is placed physically between the mountains and the plain. In 1859 Cesena was among the first of the cities of the Romagna which threw off the Papal yoke.

CESPEDES (in Italian CEDASPE), PABLO DE (1538-1608), was born at Cordova, and was educated at Alcalá de Henares, where he studied theology and Oriental languages.

A distinguished poet, a remarkable painter, eminent also as an architect and sculptor, Pablo de Cespedes has been called the most 'savant' of Spanish artists. According to his friend Francisco Pacheco, to whom posterity is indebted for the preservation of all of Cespedes' verse that is extant, the school of Seville owes to him its introduction to the practice of chiaroscuro. He was a bold and correct draughtsman, a skilful anatomist, a master of color and composition; and the influence he exerted to the advantage of early Spanish art was considerable. Cristobal de Vera, Juan de Peñalosa, and Zambrano were among his pupils. His best picture is a *Last Supper* at Cordova; but there are good examples of his work at Seville and at Madrid.

CETACEA (from the Greek a whale) is the name employed by zoölogists to characterize the important order of Mammals which contains the whales and dolphins. These mammals are aquatic in their habits, and possess a fish-like form. They differ from fishes in breathing by lungs and not by gills, in being viviparous and not oviparous, and in suckling their young with a pair of milk-secreting glands or mammæ. This order was formerly divided into two groups, the herbivorous cetacea and the carnivorous cetacea. By modern zoölogists the herbivorous cetacea, which include the animals called dugong, manatee, and rytina, are not regarded as whales, but are referred to a distinct order named *Sirenia*. The order *Cetacea*, therefore, in its present acceptation is limited to the toothed whales or *Odontoceti* and the whalebone whales or *Mystacoceti*. For the organization, classification, and distribution of these animals, see MAMMALIA.

CETINA, GUTIERRE DE, soldier and poet, was born

in Seville during the earlier years of the 16th century. Choosing the career of arms as a means of obtaining the preferment he needed, he served several campaigns in Italy, fought at the leaguer of Tunis (1535) against Barbarossa, and continued in the practice of his profession for some years in Flanders, under Ferdinand of Austria. The death of the prince of Ascoli, his patron and protector, whom he mourned in a fine elegiac sonnet, and his own continued poverty, would seem to have disgusted him with the trade of war. He returned to Seville, departing thence soon afterwards for Mexico, where he had a brother high in office. No more is known of him, save that he came back again to the city of his birth, and that he died there, it is supposed about 1560. An enthusiast in art, the friend of Boscan and Garcilaso, of Hurtado de Mendoza and Jeronimo de Urrea, Gutierre de Cetina, as may naturally be inferred, followed in the wake of these poets, renouncing the old Castilian creed, and preaching the new evangel of Petrarch. His poems, which were not published till long after his death, consist of sonnets, *canzoni*, epistles in *terza rima*, and madrigals, and are remarkable for elegance and simplicity of form, and for grace and tenderness of thought and feeling. Their author has been often confounded with Doctor Gutierre de Cetina, who was vicar of Madrid.

CETTE, a fortified seaport in the department of Hérault, in $43^{\circ} 23' 48''$ N. lat. and $3^{\circ} 42' 15''$ E. long., and 15 miles S.W. of Montpellier. After Marseilles it is the principal commercial port on the south coast of France. Population, 25,500.

CETTINJE, CETINJE, ZETINJE, CETTIGNO, or CETTIN, the capital of the principality of Montenegro, is situated on the left of a small river in a narrow plain deeply sunk in the heart of the mountains, at a height of 2470 feet above the sea. The town owes its origin to Ivan the Black, who was obliged, in the end of the 14th century to withdraw from Jabliak, the former capital, situated to the north of Lake Scodra. The town has frequently been taken and ravaged by the Turks, but has seldom continued for any length of time in their possession. Population about 700.

CEUTA, or (in the local Moorish form) SEBTA, a town and fortress belonging to Spain on the coast of Morocco, on a peninsula opposite Gibraltar. It derives its name from its seven hills, the most important of which, the Monte del Hacho (the ancient *Abyla*, one of the pillars of Hercules), has a considerable elevation. In 1860 the Spanish territory around the town was extended by force of arms. Population about 7000.

CEVA, the ancient *Ceba*, a town of Italy, in the province of Cuneo and 11 miles east of Mondovì, at the confluence of the Cevetta with the Tanaro. Population, 4730.

CÉVENNES, a mountain chain in the south of France, dividing the valleys of the Lower Saône and Rhone from those of the Loire and the Garonne. The average height is 3000 to 4000 feet; and the highest peaks are Mount Mezenc (in Ardèche), 5788 feet, and Mount Lozère, 4880. The principal rivers which take their rise in these mountains are the Loire, the Allier, the Lot, and the Tarn. In the Cévennes are found iron, coal, lead, silver, copper, antimony, marble, and porphyry. The lower slopes are well cultivated; higher up good pasturage is found; while the summits are generally covered with forests of chestnuts and pine. The Cévennes are famous as the retreats of the Albigenses, Waldenses, and Camisards.

CEYLON, an island in the Indian Ocean, separated on the N.W. from continental India by the Gulf of Manaar. Its extreme length from north to south is 271 miles; its greatest width is 137 miles; and its area,

including that of its dependent islands, amounts to 25,742 miles, or about one-sixth smaller than Ireland. In its general outline the island resembles a cone, the apex of which points towards the north.

The coast is beset on the N.W. by numberless sandbanks, rocks, and shoals, and may be said to be almost connected with India by the island of Ramisseram and Adam's Bridge, a succession of bold rocks reaching almost across the gulf at its narrowest point.

Seen from a distance at sea, this "utmost Indian isle" of the old geographers wears a truly beautiful appearance. The remarkable elevation known as "Adam's Peak," the most prominent, though not the loftiest, of the hilly ranges of the interior, towers like a mountain monarch amongst an assemblage of picturesque hills, and is a sure landmark for the weary navigator, when as yet the Colombo light-house is hidden from sight amidst the green groves of palms that seem to spring from the waters of the ocean.

The low coast-line of the country encircles the mountain-zone of the interior on the east, south, and west, forming a belt which extends inland to a varying distance of from 30 to 80 miles; but on the north the whole breadth of the island from Kalpitiya to Batticaloa is an almost unbroken plain, containing magnificent forests of great extent.

For a long period Adam's Peak was supposed to be the highest mountain in Ceylon, but actual survey makes it only 7352 feet above the sea-level. This elevation is chiefly remarkable as the resort of pilgrims from all parts of the East. The hollow in the lofty rock that crowns the summit is said by the Brahmans to be the footstep of Siva, by the Buddhists of Buddha, by the Mahometans of Adam, whilst the Portuguese Christians were divided between the conflicting claims of St. Thomas and the eunuch of Candace queen of Ethiopia. The footstep is covered by a handsome roof, and is guarded by the priests of a rich monastery half way up the mountain, who maintain a shrine on the summit of the peak. The highest mountains in Ceylon are Piduru Talagala, 8295 feet in altitude; Kirigalpota, 7836 feet; and Totapelakanda, 7746 feet.

The summits of the highest ridges are clothed with verdure, and along their base, in the beautiful valleys which intersect them in every direction, the slopes were till within the last few years covered with forests of gigantic and valuable trees, which have now disappeared under the axe of the planter, who has felled and burnt the timber on all the finest slopes at an elevation of 2000 to 4500 feet and covered the hillsides into highly-cultivated coffee estates. The plain of Nuwara Eliya, the sanitorium of the island, is at an elevation of 6200 feet, and possesses many of the attributes of an Alpine country. The climate of the Horton plains, at an elevation of 7000 feet, is still finer than that of Nuwara Eliya, but they are difficult of access, and are but little known to Europeans. The town of Kandy, in the Central Province, formerly the capital of the native sovereigns of the interior, is situated 1727 feet above sea-level.

The island, though completely within the influence of oceanic evaporation, and possessing an elevated tableland of considerable extent, does not boast of any rivers of great volume. The rains which usher in each monsoon or change of season are indeed heavy, and during their fall swell the streams to torrents and impetuous rivers. But when these cease the water-courses fall back to their original state, and there are but few of the rivers which cannot be passed on horseback. "In the plains there are comparatively few rivulets or running streams; the rivers there flow in almost solitary lines to the sea; and the beds of their minor affluents serve

only to conduct to them the torrents which descend at the change of each monsoon, their channels at other times being exhausted and dry. But in their course through the hills and the broken ground at their base they are supplied by numerous feeders, which convey to them the frequent showers that fall in these high altitudes. Hence their tracks are through some of the noblest scenery in the world; rushing through ravines and glens, and falling over precipitous rocks in the depths of wooded valleys, they exhibit a succession of rapids, cataracts and torrents, unsurpassed in magnificence and beauty. On reaching the plains, the boldness of their march and the graceful outline of their sweep are indicative of the little obstruction opposed by the sandy and porous soil through which they flow. Throughout their entire course dense forests shade their banks." The most important of the Ceylon rivers is the Mahaveli-ganga, which has its source in the Pidurutalagala mountain, whence it takes a tortuous course through the Kotmale valley to Pasbage, where it is joined by a smaller branch issuing from the base of Adam's Peak; it then passes through the village of Peradeniya, where it is crossed by the railway bridge, and by a beautiful bridge, of a single span of 205 feet, constructed of satin wood, on the American or wedge principle. Thence it winds to the west and north of Kandy, and after an easterly descent of nearly 1000 feet between Kandy and Bintenne, sweeps suddenly to the north, and takes its course through the wild and open country, separating into two branches,—the smaller of which, the Verukal, enters the sea about 25 miles south of Trincomalee, while the larger, retaining its original name, falls into the great bay of Kottiar, near the noble harbor of Trincomalee, after a course of nearly 200 miles. In flood-time it rises 25 or 30 feet, but for the greater part of the year it is fordable in many places.

There are in Ceylon some lakes of considerable extent and of great beauty. Those of Colombo, Bolgoda, and Negombo are of natural formation; those which have been formed by human labor will be noticed below in connection with irrigation. The rivers, as already explained, descend rapidly from the hills, and sweep along in their rapid course large quantities of earthy matter; at their junction with the ocean they are met "transversely by the gulf-streams, and the sand and soil with which they are laden, instead of being carried out to sea, are heaped up in bars along the shores, and then, augmented by similar deposits held in suspension by the currents, soon extend to north and south, and force the rivers to flow behind them in search of a new outlet." At the mouths of the rivers, the bars thus created generally follow the direction of the current, and long embankments are gradually raised, behind which the rivers flow for considerable distances before entering the sea. Occasionally the embouchures become closed by the accumulations without, and the rivers, swollen by the rains, force new openings for themselves, and leave their ancient channels converted into lakes. Thus have been formed the lakes of Colombo and Negombo on the west coast, the harbor of Batticaloa on the east, and the long low embankments of sand on both coasts. These embankments, known by the local name of "Gobbs," and often from one to three miles in breadth, are covered with thriving cocoa-nut plantations.

The Dutch whilst in possession of Ceylon did much to improve its water communication, and connected the natural channels formed by these embankments by constructing artificial canals, so as to provide unbroken water communication between Kalpitiya, on the N. W. coast, and Negombo; this line has been extended from Negombo to Colombo, and on the south as far as Kalutara.

The magnificent basin of Trincomalee, situated on the east coast of Ceylon, is perhaps unsurpassed in extent, security, and beauty by any haven in the world. The admiralty has a dockyard here, and it is the principal naval station in the Indian Seas; but it is far removed from the productive districts, the population is small and scattered, and vessels have to resort to the rocky and dangerous harbor of Point de Galle at the south, or to the open roadstead of Colombo on the west. Something has been done by blasting to improve Galle harbor, but it is small, and its entrance is narrow and difficult; it is also somewhat remote from the most productive districts, and the Colonial Government has decided on making a breakwater at Colombo in preference to improving Galle harbor. The anchorage at Colombo is good, and it is anticipated that the new works will render it a secure harbor at all times of the year.

The seasons in Ceylon differ very slightly from those prevailing along the coasts of the Indian peninsula. The two distinctive monsoons of the year are called, from the winds which accompany them, the south-west and the north-east. The former is very regular in its approach, and may be looked for along the S.W. coast between the 10th and 20th of May; the latter reaches the N.E. coast between the end of October and the middle of November. There is a striking contrast in the influence which the south-west monsoon exerts on the one side of the island and on the other. The clouds are driven against the lofty mountains that overhang the western and southern coasts, and their condensed vapors descend there in copious showers. But the rains do not reach the opposite side of the island; whilst the south-west is deluged, the east and north are sometimes exhausted with dryness; and it not unfrequently happens that different sides of the same mountain present at the same moment the opposite extremes of drought and moisture. The influence of the north-east monsoon is more general. The mountains which face the north-east are lower and more remote from the sea than those on the south-west; the clouds are carried further inland, and it rains simultaneously on both sides of the island.

The length of the day, owing to the proximity of the island to the equator, does not vary more than an hour at any season.

Ceylon may be said to have been for ages slowly rising from the sea, as appears from the terraces abounding in marine shells, which occur in situations far above high-water mark, and at some miles distant from the sea. A great portion of the north of the island may be regarded as the joint production of the coral polypi and the currents, which for the greater part of the year set impetuously towards the south; coming laden with alluvial matter collected along the coast of Coromandel, and meeting with obstacles south of Point Calimere, they have deposited their burdens on the coral reefs round Point Pedro; and these, raised above the sea-level, and covered deeply by sand drifts, have formed the peninsula of Jaffna, and the plains that trend westward till they unite with the narrow causeway of Adam's Bridge. The Tertiary rocks are almost unknown. The great geological feature of the island is the profusion of gneiss, overlaid in many places in the interior by extensive beds of dolomitic limestone. This formation appears to be of great thickness; and when, as is not often the case, the under-surface of the gneiss series is exposed, it is invariably found resting on granite. Veins of pure quartz and felspar of considerable extent have been frequently met with in the gneiss; whilst in the elevated lands of the interior in the Galle districts may be seen copious deposits of disintegrated felspar, or kaolin, commonly known as porcelain clay. At various elevations the

gneiss may be found intersected by veins of trap rocks, upheaved whilst in a state of fusion subsequent to the consolidation of the former. In some localities on the seashore these veins assume the character of pitch-stone porphyry highly impregnated with iron. Hornblende and primitive greenstone are found in the vicinity of Adam's Peak and in the Pussellava district.

In the Sabaragamuwa district precious stones are met with in great abundance; also, though less commonly, in the Badulla, Nuwara Eliya, and Matara districts. The most valuable are the ruby, the sapphire, the amethyst, the cat's-eye, and the carbuncle. Emeralds are rarely met with in any purity; but the moon-stone, cinnamon stones, and garnets are found in great abundance and variety.

The general character of the soil in the maritime provinces to the east, south, and west is sandy. The quantity of really rich coffee land is but small as compared with the extent of country,—vast tracts of open valleys consisting of an indifferent yellow tenacious soil interspersed with many low ranges of quartz rock.

The characteristics of the low-growing plants of Ceylon approach nearly to those of the coasts of Southern India.

Leaving the plains of the maritime country and ascending a height of 4000 feet in the central districts, we find both herbage and trees assume an altered character. The foliage of the latter is larger and deeper-colored, and they attain a height unknown in the hot low country. The herbaceous vegetation is there made up of ferns. The dense masses of lofty forests at that altitude are interspersed with large open tracts of coarse wiry grass, called by the natives *patanas*, and of value to them as affording pasturage for their cattle.

Between the altitudes of 4000 and 8000 feet, many plants are to be met with partaking of European forms, yet blended with tropical characteristics. The guelder rose, St. John's wort, the pitcher plant, violets, geraniums, buttercups, sun-dews, ladies' mantles, and campanulas thrive by the side of *Magnoliaceæ*, *Ranunculaceæ*, *Elæocarpeæ*, &c. The most beautiful flowering shrub of this truly Alpine region is the rhododendron, which in many instances grows to the height of 70 feet. It is met with in great abundance in the moist plains of the elevated land above Nuwara Eliya, flowering abundantly in June and July.

The timber trees indigenous to Ceylon are met with at every altitude from the sea-beach to the loftiest mountain peak. They vary much in their hardness and durability, from the common cashew-nut tree, which when felled decays in a month, to the ebony and satinwood, which for many years resist the attacks of insects and climate. The known woods amount to 416 varieties, of which 33 are valuable for furniture, and house and ship-building, and are capable of standing long exposure to weather. The most beautiful woods adapted to furniture work are the calamander, ebony, flowered-satinwood, tamarind, nedun, dell, kadomberiya, kitul, cocoa-nut, &c.; the sack-yielding tree (*Antiaris saccharifera*), for a long time confounded with the far-famed upas tree of Java (*Antiaris toxicaria*), grows in the Kurunegala district of the island.

The *Cocos nucifera*, or cocoa-nut palm, is a native of the island, and may justly be considered the most valuable of its trees. It grows in vast abundance along the entire sea-coast of the west and south sides of the island, and furnishes almost all that a Sinhalese villager requires. Its fruit, when green, supplies food and drink; when ripe, it yields oil. The juice of the unopened flower gives him toddy and arrack. The fibrous casing of the fruit when woven makes him ropes, nets, matting. The nut-shells form drinking-vessels, spoons, &c. The

plaited leaves serve as plates and dishes, and as thatch for his cottage. The dried leaves are used as torches, the large leaf-stalks as garden fences. The trunk of the tree sawn up is employed for every possible purpose, from knife-handles to door-posts; hollowed out it forms alike a canoe or coffin. There are four kinds of this palm,—the common, the king, the dwarf, and the Maldive.

The Palmyra and Areca palms grow luxuriantly and abundantly, the former in the northern, the latter in the western and central districts. The one is valuable chiefly for its timber, of which large quantities are exported to the Indian coasts; the other supplies the betel-nut in common use amongst natives of the eastern tropics as a masticatory. The export trade in the latter to India and eastern ports is very considerable, amounting to £70,000 a year in value.

Next in importance to the cocoa-nut palm amongst the indigenous products of Ceylon is the cinnamon plant, yielding the well known spice of that name.

Foremost among the animals of Ceylon is the elephant, which, though far inferior to those of Africa and the Indian continent, is nevertheless of considerable value when tamed, on account of its strength, sagacity, and docility. They are to be met with in greater or less numbers throughout most unfrequented parts of the interior. Occasionally they make inroads in herds upon the cultivated grounds and plantations, committing great damage. In order to protect these lands, and at the same time keep up the Government stud of draught elephants, "kraals" or traps on a large scale are erected in the forests, into which the wild herds are driven; and once secured, they are soon tamed and fit for service. The oxen are of small size, but hardy, and capable of drawing heavy loads. Buffaloes exist in great numbers throughout the interior, where they are employed in a half-tame state for ploughing rice-fields and treading out the corn. They feed upon any coarse grass, and can therefore be maintained on the village pasture lands where oxen would not find support. Of deer, Ceylon possesses the spotted kind, the muntjac, a red deer (the Sambur of India), popularly called the Ceylon elk and the small musk. There are five species of monkeys, one the small rilawa and four known in Ceylon by the name of "wandaru," and the small quadrumanous animal, the loris, known as the "Ceylon sloth." Of the Cheiroptera sixteen species have been identified; amongst them is the rousette or flying fox. Of the Carnivora the only one dangerous to man is the small black bear. The tiger is not known in Ceylon, but the true panther is common, as is the jackal (*Canis aureus*) and the mongoos or ichneumon. Rats are numerous, as are the squirrel and the porcupine, and the pig-rat or bandicoot, while the scaly ant-eater, locally known by the Malay name of pengolin, is occasionally found. The dugong is frequently seen on various points of the coast.

Upwards of 320 species of birds have been found in Ceylon, and many of them have splendid plumage, but in this respect they are surpassed by the birds of South America and Northern India. The eagles are small and rare, but hawks and owls are numerous; among the latter is a remarkable brown species, the cry of which has earned for it the name of the "devil-bird." The esculent swift, which furnishes in its edible nest the celebrated Chinese dainty, builds in caves in Ceylon. Crows of various species are numerous, and in the wilder parts pea-fowl are abundant. There are also to be mentioned king-fishers, sun-birds, several beautiful fly-catchers and snatchers, the golden oriole, parrots, and numerous pigeons, of which there are at least a dozen species. The Ceylon jungle-fowl is distinct from the Indian species. Ceylon is singularly rich in

wading and water birds, —ibises, storks, egrets, spoon-bills, and herons being frequently seen on the wet sands, while flamingoes line the beach in long files, and on the deeper waters inland are found teal and a countless variety of ducks and smaller fowl. Of the birds familiar to European sportsmen there are partridge, quail, and snipe in abundance, and the woodcock has been seen.

The poisonous snakes of Ceylon are not numerous. Four species have been enumerated,—the ticpolonga (*Daboia elegans*), the cobra di capello (*Naja tripudians*), the carawilla (*Trionocephalus hypnale*), and the *Trionocephalus nigromarginatus*, which is so rare that it has no popular name. The largest snake in Ceylon is the “boa,” or “anaconda” of Eastern story (*Python reticulatus*); it is from 20 to 30 feet in length, and preys on hog-deer and other smaller animals. Crocodiles infest the rivers and estuaries, and the large fresh-water reservoirs which supply the rice-fields; there are two species (*C. biporcatus* and *C. palustris*). Of lizards the most noteworthy are the iguana, several bloodsuckers, the chameleon, and the familiar geckoes, which are furnished with pads to each toe, by which they are enabled to ascend perpendicular walls and adhere to glass and ceilings.

Insects exist in great numbers. The leaf and stick insects are of great variety and beauty. Ceylon has four species of the ant-lion, renowned for the predaceous ingenuity of its larvæ; and the white ants or termites, the ravages of which are most destructive, are at once ubiquitous and innumerable in every place where the climate is not too chilly, or the soil too sandy for them to construct their domed dwellings. They make their way through walls and floors, and in a few hours destroy every vegetable substance within their reach. Of all the insect pests that beset an unseasoned European the most annoying are the mosquitoes. Ticks are also an intolerable nuisance; they are exceedingly minute, and burrow under the skin. In the lower ranges of the hill country land leeches are found in tormenting profusion.

Of the fish in ordinary use for the table the finest is the seir, a species of scomber. Mackerel, dories, carp, whittings, mullet (red and striped), soles, and sardines are abundant. Sharks appear on all parts of the coast, and the huge saw-fish infests the eastern coast of the island, where it attains a length of from 12 to 15 feet. There are also several fishes remarkable for the brilliancy of their coloring; e.g., the red sea perch, of the deepest scarlet, and the great fire fish, of a brilliant red. Some are purple, others yellow, and numbers with scales of a lustrous green are called “parrots” by the natives; of these one is called the “flower parrot,” from its exquisite coloring—irregular bands of blue, crimson, and purple, green, yellow and grey, crossed by perpendicular stripes of black.

Pearl oysters are found in the Tambalagam bay, near Trincomalee, but the great banks on which these oysters are usually found lie near Arippe, off the northern part of the west coast of Ceylon, at a distance of from 16 to 20 miles from the shore. They extend for many miles north and south, varying considerably in their size and productiveness. A naturalist was recently employed by the Government for five years to study the habits of the pearl oysters, but no information of any value has been obtained. It is, however, generally believed that the oyster arrives at maturity in its seventh year, that the pearl is then of full size and perfect lustre, and that if the oyster be not then secured it will shortly die, and the pearl be lost. It is certain that from some unexplained cause the oysters disappear from their known beds for years together. The Dutch had no fishery from 1732 to 1746, and it failed them again for

27 years from 1768 to 1796. The fishery was again interrupted between 1820 and 1828, also from 1833 to 1854, and from 1864 to 1873. In 1797 and 1798 the Government sold the privilege of fishing the oyster-beds for £123,982 and £142,780 respectively. Since that time the fishery has been conducted by the Government itself, which sells the oysters in heaps of 1000 as they are landed from the boats. Under this system, however, receipts have not exceeded £87,000 in any year, and have fallen as low as £7200, which was the net revenue from the fishery of 1874. In 1888 the fisheries yielded a net revenue of £46,000. The small oyster found at Tambalagam is the *Placuna placenta*; the pearl oyster of the Arippe banks is the *Meleagrina margaritifera*.

History.—The island of Ceylon was known to the Greeks and Romans under the name of Taprobane, and in later times Serendib, Sirinduil, and Zeylan have been employed to designate it by writers of the Western and Eastern Worlds. Serendib is a corruption of the Sanskrit *Sinhaladvīpa*. Like most Oriental countries, Ceylon possesses a great mass of antiquarian records, in which the real is so intimately and largely blended with the ideal that the student finds it difficult to determine the respective limits of history and fable. The labors of Turnour have, however, helped to dissipate much of what was before confused and contradictory, and in his admirable translation of the “Mahawanso” we may trace the true current of Sinhalese history.

Of the first colonization of Ceylon but little is known. In the great Hindu epic, the Ramayana, we have the fable of the conquest of a part of Ceylon by the hero Rama and his followers, who, as the poem tells, besieged and took the capital of its king Rawana. No permanent occupation of the country took place at this time, nor until the advent, in 543 B.C., of Vijaya an Indian prince, who, arriving from the mainland with a small band of followers, succeeded in establishing himself as sole ruler of the country. To this king is attributed the introduction of *caste* into Ceylon, an institution which, although far less rigorously observed than on the continent, is still maintained.

Under him and his successors Ceylon attained a degree of civilization scarcely to be looked for in that remote age of Oriental despotism. The purity of the religious and moral code, the strict administration of justice, and the well-defined and carefully protected rights of the king and his many classes of subjects excite our admiration not less than our astonishment. It is impossible, however, to follow the subsequent current of Sinhalese history through its many intricate windings. It must suffice to say that the descendants of Vijaya the conqueror continued to hold the reins of government with varied ability and unequal success. Some of them were distinguished for their learning, their military prowess, their benevolence, and the length of their reigns. Others lived amidst civil dissensions and foreign invasions, which not unfrequently cost them their lives. The incursions of the Malabars upon their territories were not less frequent and fatal than those of the Danes in Britain. During a period of four or five centuries, these marauders continued to pour their bands of armed men into the island; and so far had the country fallen off from its ancient prosperity and strength that when, in the year 1505, the Portuguese adventurer Almeida landed at Colombo, he found the island divided into seven separate kingdoms.

The first settlement of the Portuguese was effected in 1517, when Albergaria succeeded in obtaining permission from the king of Kotta, whose territories closely adjoined Colombo, to erect a small factory on the latter spot for purposes of trade. Once established the new

comers lost no opportunity of strengthening their position and extending their intercourse with the natives. Stone walls quickly took the place of palisades; the factory became a fort; whilst bristling cannon commanded alike the approaches by land and the entrance by sea. Alarmed at these unequivocal signs of military possession, the Sinhalese kings attempted to expel their new friends from the island, in which they were joined by the Moorish and other traders opposed to the progress of the Portuguese. But their efforts were too late, and proved ineffectual; and after a series of unequal and sanguinary conflicts, the Europeans found themselves in secure possession of the west coast of Ceylon.

The fanatical zeal and remorseless cruelty of the Portuguese were a constant source of dissension with the natives; and when in the year 1602, the Dutch, under Admiral Spilberg, landed on the east coast and sought the alliance of the king of Kandy in the interior of the island, every encouragement was held out to them with the view of inducing them to aid in expelling the Portuguese. Nothing seems to have come of this until 1638-9, when a Dutch expedition attacked and razed the Portuguese forts on the east coast. In the following year they landed at Negombo, without, however, establishing themselves in any strong post. In 1644 Negombo was captured and fortified by the Dutch, while in 1656 they took Colombo, and in 1658 they drove the Portuguese from Jaffna, their last stronghold in Ceylon.

Pursuing a wiser policy than their predecessors, the Dutch lost no opportunity of improving that portion of the country which owned their supremacy, and of opening a trade with the interior. More tolerant and less ambitious of military renown than the Portuguese, they so far succeeded in their object as to render their commerce between this island and Holland a source of great profit. Many new branches of industry were developed. Public works were undertaken on a large scale, and education, if not universally placed within the reach of the inhabitants of the maritime provinces, was at least well cared for on a broad plan of Government supervision.

That which they had so much improved by policy they were, however, unable to defend by force when the British turned their arms against them. A century and a half had wrought great changes in the physical and mental status of the Dutch colonists. The territory which in 1658 they had slowly gained by undaunted and obstinate bravery, they as rapidly lost in 1796 by imbecility and cowardice.

The first intercourse of the English with Ceylon took place as far back as 1763, when an embassy was despatched from Madras to the king of Kandy, without, however, leading to any result. On the rupture between Great Britain and Holland in 1795, a force was sent against the Dutch possessions in Ceylon, where the opposition offered was so slight that the following year the whole of their forts were in the hands of the English commander.

At first the island was placed under the care of the East India Company, but in 1802 the whole seaboard of Ceylon became, by the treaty of Amiens, a possession of the British Crown. The central tract of hilly country, hedged in by impenetrable forests and precipitous mountain ranges, remained in possession of Wikrama Sinha, the last of the Malabar dynasty of kings, who showed no signs of encouraging communication with his European neighbors.

Minor differences led in 1803 to an invasion of the Kandyan territory; but sickness, desertion, and fatigue proved more formidable adversaries to the British forces than the troops of the Sinhalese monarch, and peace was eventually concluded upon terms by no means favorable

to the English. The cruelty and oppression of the king now became so intolerable to his subjects that disaffection spread rapidly amongst them. Executions of the most horrible kinds were perpetrated. The utmost stretch of despotism failed to repress the popular indignation; and in 1815 the British, at the urgent request of many of the Adigars and other native chiefs, proceeded against the tyrant, who was captured near Kandy, and subsequently ended his days in exile. With him ended a long line of sovereigns, whose pedigree may be traced through upwards of two thousand years.

By a convention entered into with the Kandyan chiefs on the 2d of March, 1815, the entire sovereignty of the island passed into the hands of the British, who in return guaranteed to the inhabitants civil and religious liberty. The religion of Buddha was declared inviolable, and its rights, ministers, and places of worship were to be maintained and protected; the laws of the country were to be preserved and administered according to established forms; and the royal dues and revenues were to be levied as before for the support of Government.

With the exception of a serious outbreak in some parts of the interior in 1817, which lasted for upwards of a year, and of two minor attempts at rebellion easily put down, in 1843 and 1848, the political atmosphere of Ceylon has remained undisturbed since the deportation of the last king of Kandy.

The total population of Ceylon, as ascertained by the census of March, 1881, is given as 2,763,984.

CHABLIS, a town of France, on the Seray or Serein, in the department of Yonne. Population, 2,500.

CHABRIAS, a celebrated Athenian general, who first assumed the command about the year 392 B.C. He defeated the Spartans at Ægina (388) and again at Naxos (376). With Iphicratus and Callistratus he commanded at Corcyra, and repulsed Epaminondas before the walls of Corinth. In 366, together with Callistratus, he was accused of treachery in advising the surrender of Oropus to the Thebans, and was then, it is said, defended by Plato. His unpopularity on account of this charge, and also on account of his ostentation and luxuriousness, led him to accept a foreign command under Tachos, king of Egypt, who had revolted from the Persians. On the breaking out of the Social War (357), he, however, joined Chares in the command of the Athenian fleet. At the siege of Chios, his ship was disabled, but he refused to flee, and fell fighting bravely. He was famous for the invention of a manœuvre, which consisted in receiving a charge on the left knee, with the spears of the front ranks pointed against the enemy and the shields resting on the ground.

CHADERTON, LAURENCE, a Puritan divine, was born at Lees Hall, in the parish of Oldham, England, September 14, 1536, being the second son of Edmund Chaderton. In the beginning of the reign of James I., Chaderton was appointed one of the five divines for managing the cause of the Puritans at the Hampton Court conference, and he was also one of the translators of the Bible. He died in 1640, at the age of almost 105.

CHÆRONEIA, a Bœotian town situated on the Thermodon, a tributary of the Cephissus, on a plain which was on the borders of Phocis, and was on the natural route for an army invading Bœotia on that side. It is celebrated in history as the scene of three great battles. In the first (447 B.C.) the Athenians were defeated by the Bœotians; in the second (388 B.C.) Philip defeated the confederate forces of the Athenians and Bœotians; and in the third (86 B.C.) Sulla defeated the generals of Mithridates. A colossal lion lately excavated near the site of the modern Kápurna marks the

grave of the Bœotians who fell in the second of these engagements, and in the village itself are some remains of the ancient citadel, the Petrachus, and a theatre excavated out of the rock on which the citadel was built. Chæroneia was the birthplace of Plutarch.

CHAFFINCH (*Fringilla cælebs*), a Conirostral Bird, belonging to the family *Fringillidæ* or Finches, and distinguished, in the male sex, by the deep grayish-blue of its crown feathers, the sulphur yellow of its rump, the white of the wing coverts, so disposed as to form two conspicuous bars, and the reddish-brown passing into vinous red of the throat and breast. The female is less conspicuous in its coloring than the male, and the young males resemble the females until after the first autumn molt, when they gradually assume the plumage of their sex.

CHAGRES, a seaport of Colombia, in the state of Panama, situated on the northern side of the Isthmus of Panama, about twelve miles west-southwest of Colon or Aspinwall, at the mouth of a river of its own name. Before the operation of the railway between Panama and Aspinwall in 1855 it was a place of very considerable importance; but it has now sunk into a very decadent and dilapidated condition, and the inhabitants, who are mainly negroes, or half-castes, only amount to about 1,000. The period of its greatest prosperity coincides with the great emigration from the United States to the California gold-fields, and the district on the left side of the river is still known as the American town. The chief facts in its history are its destruction by the buccaneers in 1671 and its capture by the English under Admiral Vernon in 1740.

CHAIN, in surveying (called Gunter's Chain from its inventor), is a measure of 22 yards long, composed of 100 iron links, each of which is thus 7.92 inches long. As an acre contains 4,840 square yards, 10 square chains ($22 \times 22 \times 10 = 4,840$ square yards), or 100,000 square links make an acre.

CHAIN-MAIL, or **CHAIN-ARMOR**, much used in the twelfth and thirteenth centuries, consisted of hammered iron links, connected one to another in the form of a garment.

CHAINS, on shipboard, are strong iron links or plates, bolted at the lower end to the ship timbers, and having a block or *dead-eye* at the upper end. Their purpose is to fasten down the shrouds tightly.

CHAINS, **HANGING IN**. In atrocious cases, it was usual for courts of justice, in former times, to direct the bodies of malefactors, after execution, to be hung in chains upon a gibbet near the spot where the crime was committed.

CHALCEDON, or rather **CALCHEDON**, an ancient maritime town of Bithynia, in Asia Minor, called also Procerastis and Colpusa, almost directly opposite Byzantium, to the south of the present town of Scutari. It was founded by a colony from Megara, on a site so obviously inferior to that which was within their view on the opposite shore, that it received from the oracle the name of "The City of the Blind." In its early history it shared the fortunes of Byzantium, was taken by the satrap Otanes, vacillated long between the Lacedæmonian and the Athenian interest, and at last fell into the hands of the kings of Bithynia, by the last of whom it was bequeathed to the Romans. It was taken and partly destroyed by Mithridates, but it recovered during the empire, and in 451 A.D. was the seat of the Fourth General Council, which condemned the Monophysites. It fell under the repeated attacks of the barbarian hordes, who crossed over after having ravaged Byzantium, and it furnished an encampment to the Persians under Chosroes for about ten years after 616. Its ruin was completed by the Turks, who used

it as a quarry from which to draw the building material for Constantinople.

CHALCEDONY, a mineral of the quartz family, or rather a variety of quartz, from which it does not differ in chemical composition or in any essential character. It derives its name from Chalcedon in Bithynia, near which it is found in considerable abundance, and has been known by the same name from ancient times.

CHALCIS. See **EUBŒA**.

CHALDEA. See **BABYLONIA**.

CHALEUR BAY, an inlet of the Gulf of St. Lawrence, between Gaspé, a district of Lower Canada, and New Brunswick, having a depth of ninety miles from east to west, and a width varying from twelve to twenty. The Ristigouche, which enters the gulf from New Brunswick at its head, marks, at its mouth, the inter-provincial boundary.

CHALICE (Lat. *calix*, a cup), an ancient name for an ordinary drinking-cup and retained for the vessels used for the wine in the holy sacrament.

CHALK, an earthly limestone of the Upper Cretaceous group of rocks. It has a specific gravity of from 2.4 to 2.6, is rough to the touch, is friable, and presents an uneven fracture; it has an insipid taste, and adheres slightly to the tongue; it is usually white, and imparts its color to surfaces over which it is rubbed. On microscopical examination, chalk is found to consist in the main of the minute shells of Foraminifera. In addition to calcium carbonate, chalk usually contains about 5 per cent. of water, with some free silica and ferric oxide, besides minor impurities. The red varieties of chalk may contain as much as 9.28 per cent. of silica, 9.6 per cent. of ferric oxide, and 1.42 per cent. of alumina. Some of the red chalk of Norfolk gives, when treated with acids, an argillaceous residue, which when air-dried has a weight equal to 9.3 per cent. that of the chalk taken, and has been found on analysis to consist of water, ferric oxide, and alumina, with a small proportion of magnesia and potash.

Chalk is employed medicinally as an antacid and mild astringent, either alone, or together with other astringents, or combined with mercury as hydrargyrum cum creta, but never in the crude state. As none of the salts it forms is purgative, it is a valuable remedy in diarrhœa. Externally, prepared chalk is used as a dessiccant, and as a protective application for ulcers and burns, and in intertrigo and other affections of the skin. When taken for a prolonged period, chalk is apt to form concretions in the stomach, for want of acid sufficient to dissolve it.

Chalk is rarely hard enough to be used in any kind of building. When burnt to lime it serves the same purposes as stone lime, but on account of its more rapid absorption of carbonic acid gas, it is not so fit for general use as the latter, except when fresh from the kiln. Chalk is employed in the manufacture of cements and of carbonate of soda, in the preparation of carbonic acid gas, and in many other chemical processes; also for making paints, crayons, and tooth powder. Whiting or Spanish white, used to polish glass and metal, is purified chalk prepared by triturating common chalk with a large quantity of water, which is then decanted and allowed to deposit the finally-divided particles it holds in suspension.

Black chalk or drawing slate is a soft carbonaceous schist, which gives a black streak, so that it can be used for drawing or writing. Brown chalk is a kind of umber. Red chalk or reddle is an impure earthy variety of hæmatite. French chalk is a soft variety of steatite, a hydrated silicate of magnesium.

CHALLENGE, in law, an exception to jurors, taken either by the State or by the defense. Challenges may

be for cause or peremptory, and the number is limited by statute.

CHALLENGER, THE VOYAGE OF THE, an interesting scientific expedition made by a British war vessel 1872-76, when many new species of deep-sea products were discovered. See the *Voyage of the Challenger*.

CHALLONER, RICHARD (1691-1781), an eminent Roman Catholic prelate, born at Lewes, England, September 29, 1691. He compiled the *Garden of the Soul*, which continues to this day to be the most popular manual of devotion among English-speaking Roman Catholics; and he revised an edition of the Douay version of the Scriptures, correcting the language and orthography, which in many places had become obsolete. Of his historical works the most valuable is one which was intended to be a Roman Catholic antidote to Foxe's well-known martyrology. He died in 1781.

CHALMERS, ALEXANDER was born in Aberdeen, Scotland, in 1759. He was educated as a doctor, but gave up the profession for literature. His first productions were contributions to London periodicals, and he was for some time editor of the *Morning Herald*. Besides editions of the works of Shakespeare, Beattie, Fielding, Johnson, Warton, Pope, Gibbon, Bolingbroke, and others, he published *A General Biographical Dictionary* in thirty-two vols. (1812-17); a *Glossary to Shakespeare*; an edition of Shakespeare; and the *British Essayists*, commencing with the *Tatler* and ending with the *Observer*, with biographical and historical prefaces and a general index. He died in 1834.

CHALMERS, GEORGE, an antiquarian and political writer of considerable eminence, was born at Fochabers, a village in the county of Moray, in the year 1742. After completing the usual course at King's College, Aberdeen, young Chalmers studied law in Edinburgh for several years. Two uncles on the father's side having settled in America, he visited Maryland in 1763, with the view, it is said, of assisting to recover a tract of land of some extent about which a dispute had arisen, and was in this way induced to commence practice as a lawyer at Baltimore, where for a time he met with much success. Having, however, espoused the cause of the Royalist party on the breaking out of the American War of Independence, he found it expedient to abandon his professional prospects in the New World, and return to his native country. His work entitled *Political Annals of the present United Colonies from their Settlement to the Peace of 1763*, 4to, London, 1780, was to have formed two volumes; but the second, which should have contained the period between 1688 and 1763, never appeared. The first volume, however, is complete in itself, and traces the original settlement of the different American colonies, and the progressive changes in their constitution and forms of government as affected by the state of public affairs in the parent kingdom. Independently of its value in being compiled from original documents, it bears evidence of great research, and has been of essential benefit to later writers.

But Chalmers' greatest work is his *Caledonia*, which, however, he did not live to complete. The first volume appeared in 1807, and is introductory to the others. It is divided into four books, treating successively of the Roman, the Pictish, the Scottish, and the Scoto-Saxon periods, from 80 to 1306 A.D. In these we are presented, in a condensed form, with an account of the people, the language, and the civil and ecclesiastical history, as well as the agricultural and commercial state of Scotland during the first thirteen centuries of our era. Unfortunately the chapters on the Roman period are entirely marred by the author's having accepted as genuine Bertram's forgery *De Situ Britannia*; but otherwise his opinions on controverted topics are

worthy of much respect, being founded on a laborious investigation of all the original authorities that were accessible to him. The style both of this and of the succeeding volumes is redundant, the scholarship is often defective, and hastily-drawn conclusions are asserted with the utmost confidence in their accuracy; yet, notwithstanding all these drawbacks, such were the industry and perseverance of Chalmers that his *Caledonia* contains a mass of information on all subjects connected with early Scottish history and topography that has been of the highest value to subsequent writers.

George Chalmers died at his house, James Street, Buckingham Gate, London, May 31, 1825, after a few days' illness, in the eighty-third year of his age.

CHALMERS, DR. THOMAS, a distinguished Scottish divine, was born at Anstruther in Fifeshire, on the 17th March, 1780. He was early destined to the church, and while only eleven years old was enrolled as a student in the university of St. Andrews. Having completed his collegiate course, in which he devoted himself almost exclusively to the study of mathematics, in January, 1799, he was licensed as a preacher of the gospel by the presbytery of St. Andrews. In May, 1803, he was ordained as minister of Kilmany, a small parish in Fifeshire, about nine miles from St. Andrews. During the preceding winter he had acted as assistant to Mr. Vilant, professor of mathematics in the university of that city, who for many years had been laid aside by ill health. The novelty, however, of his method, and the singular enthusiasm that he exhibited and excited were distasteful to those attached to the old routine of university education; and at the close of the session he was informed that his further services would not be required. Indignant at the fancied injustice thus done him, he adopted the singular expedient of opening mathematical classes of his own during the succeeding winter, which, though discountenanced in every way by the university authorities, many of the students were attracted to attend. The winter of 1803-4 was a very busy and exciting one. During the week he taught three classes in St. Andrews, and prepared and delivered there a course of lectures on chemistry, largely illustrated by experiments,—appearing at the same time in the pulpit of Kilmany every Sunday. Having sufficiently redeemed his reputation by the great success which attended them, his mathematical classes were not resumed. The lectures on chemistry were frequently redelivered in his own and in many adjoining parishes, to the surprise and delight of many rural audiences.

In 1805 the chair of mathematics in Edinburgh became vacant, and he appeared, but unsuccessfully, as a candidate. In 1808 he published an *Inquiry into the Extent and Stability of National Resources*, a treatise originated by the alarm which Bonaparte's commercial policy had created in Britain, and intended to elucidate some of those questions in political economy which the existing state of affairs had raised. He was preparing a new edition of this work when a series of domestic bereavements, and a severe illness that brought him to the brink of the grave, and laid him aside from all duty for upwards of a year, turned his thoughts and life into a new channel. Dr. Brewster had invited him to become a contributor to the *Edinburgh Encyclopædia*; at his own request the article Christianity had been assigned to him, and he was now engaged in preparing it. In studying the credentials of Christianity, he received a new impression of its contents. A sustained but abortive effort to attain that pure and heavenly morality which the Gospel of Christ requires led on to that great spiritual revolution the nature and progress of which his journal and letters enable us to

trace with such distinctness. When he resumed his duties, an entire change in the character of his ministry was visible to all. The report of discourses so earnest and eloquent as those now delivered, and of household visitations conducted with such ardent zeal, soon spread beyond the limits of his own neighborhood. His reputation as an author received at the same time a large accession by the publication in a separate form of his article on Christianity, as well as by several valuable contributions to the *Edinburgh Christian Instructor* and the *Eclectic Review*. So strong, however, at that time was the public bias against those evangelical doctrines which he had embraced, that when a vacancy occurred in Glasgow, and his friends brought him forward as a candidate, it was only after extraordinary efforts, and by a narrow majority, that his election was carried in the town-council.

In July, 1815, he was formally admitted as minister of the Tron church and parish. A blaze of unparalleled popularity at once broke around him as a preacher. A series of discourses which he had preached on the connection between the discoveries of astronomy and the Christian revelation were published in January, 1817. Never either before or since has the same reception been given to any volume of sermons in our language. Within a year, nine editions and 20,000 copies of the volume were in circulation. Soon after its appearance he visited London, and occupied for the first time one or two of the pulpits of the metropolis. The crowds were enormous, the applause loud and universal. His extraordinary popularity remained undiminished during the eight years that he remained in Glasgow.

In September, 1819, he was admitted as minister of the church and parish of St. John's. The population of the parish was made up principally of weavers, laborers, factory workers, and other operatives. Of its 2000 families, more than 800 had no connection with any Christian church. The number of its uneducated children was countless. In this, as in his former parish, Dr. Chalmers' first care and efforts were bestowed upon the young. For their week-day instruction, two commodious school-houses were built, four well-qualified teachers were provided, each with an endowment of £25 per annum; and at the moderate school-fees of 2s. and 3s. per quarter, 700 children had a first rate education supplied. For the poorer and more neglected, between forty and fifty local sabbath schools were opened, in which more than 100 children were taught. The parish was divided into 25 districts, embracing from 60 to 100 families, over each of which an elder and a deacon were placed—the former taking the oversight of their spiritual, the latter of their temporal interests. Over the whole of this complicated parochial apparatus Dr. Chalmers presided, watching, impelling, controlling every movement. Nor was his work that of mere superintendence. He visited personally all the families, completing his round of them in about two years, and holding evening meetings, in which he addressed those whom he had visited during the week. Many families were thus reclaimed to the habit of church-going, and many individuals deeply and enduringly impressed by the sacred truths of Christianity.

In November, 1828, Dr. Chalmers was transferred from the chair of moral philosophy in St. Andrews to that of theology in Edinburgh. In this wider theatre he was enabled to realize all his favorite ideas as to the best methods of academical instruction. To the old practice of reading to his students a set of carefully prepared lectures he added that of regular *viva voce* examination on what was thus delivered, and introduced besides the use of text-books, communicating through them a large amount of information; and coming into

the closest and most stimulating contact with his pupils, he attempted to combine the different systems pursued in the English and the Scottish universities. In the professorial chair there have been many who, with larger stores of learning, have conducted their students to greater scientific proficiency; but none have ever gone beyond him in the glowing impulse, intellectual, moral, and religious, that he conveyed into the hearts of the ardent youths who flocked around his chair; and to that spirit with which he so largely impregnated the young ministerial mind of Scotland, may, to a large extent, be traced the Disruption of the Scottish Established Church. In 1834, the General Assembly, after declaring it to be a fundamental principle of the church that "no minister shall be intruded into any parish contrary to the will of the congregation," had enacted that in every instance the dissent of the majority of the male heads of families, being communicants, should be a bar to the settlement of a minister. This Act, commonly called the Veto Law, was based upon the old constitutional practice of the "call," in which the people invited the minister to undertake the pastoral office, on which invitation alone the spiritual act of ordination was grounded. The church believed herself to possess the power of determining what kind and amount of popular concurrence was necessary before the pastoral tie was formed by ordination. She had often exercised that power to the effect of setting aside the nominee of the patron. When invited in such instances to interfere, the civil courts had refused, on the ground that the church was acting within the limits of her acknowledged authority. In other instances the civil courts had often reviewed decisions of the church courts, but only with a view of regulating the title to the benefice. But now the power of the church to pass such a law as that of the Veto was challenged, and the civil courts claimed a right not only to regulate the destination of the benefice, but to control and overrule the decisions of the church. In the parish of Auchterarder, containing a population of 3000 souls, only two individuals signed the call, while 287 out of 300 dissented; but in an action raised at the instance of the presentee, the Court of Session decided that his rejection by the church was illegal. This decision the House of Lords on appeal to it, confirmed,—Lords Brougham and Cottenham, in delivering judgment, stating it expressly to be their opinion that in settling a minister the church had no legal right to look beyond his qualification as to "life, literature, and morals." In this decision, as involving a forfeiture of the benefice, the church acquiesced, declaring at the same time her intention, for her own spiritual objects, to interpret for herself the statutes which established her, and announcing her unaltered purpose to protect her congregations from the intrusion of unacceptable ministers.

It speedily appeared that she was not to be permitted to carry out these resolutions if the Court of Session could prevent. The presbytery of Dunkeld rejected a licentiate presented by the Crown to the parish of Lethendy on the ground of his having been vetoed by the people. The Crown acquiesced and issued a new presentation. At the instance of the first presentee the Court of Session interdicted the presbytery from ordaining the second. The church ordered the presbytery to proceed with the ordination. It did so, and was summoned in consequence to the bar of the civil court, solemnly rebuked, and informed that in the next instance of such disregard by the church of the interdict of the civil court imprisonment would be the punishment. In the parish of Marnoch, with a population of 2800 souls, only one individual signed the call; an overwhelming majority dissented; but, in defiance of the

law of the church, and in obedience to the Court of Session, the presbytery of Strathbogie, by a majority of 7 to 3, resolved to proceed to the ordination. To prevent this ordination the church suspended the seven ministers who formed the majority. The Court of Session not only annulled that suspension and prohibited the church from intimating or executing it, but interdicted all ministers from preaching or administering any of the sacraments within any of the parishes of the seven suspended clergymen. The church held such interference as a violation of her spiritual independence, and proceeded as if no such sentence of the civil court had been passed,—many of the most distinguished ministers, Dr. Chalmers and Dr. Gordon among the rest, preaching in those parishes in the face of interdicts served on them personally. The seven suspended clergymen treated in the same way the supreme ecclesiastical authority, and on the 21st January, 1841, in opposition to an express order of the General Assembly, consummated the ordination. By the following General Assembly these clergymen were deposed from the office of the ministry. The Court of Session immediately thereafter pronounced the deposition null and void. Other like instances occurred.

The collisions between the two supreme courts became frequent and most unseemly. Matters were running into inextricable confusion. The church appealed to the Government to interfere. At first the Whigs were in power, but they declined to interfere. In 1841, Sir Robert Peel was placed at the head of a Government strong enough to have applied the remedy, and the hopes of the church were excited. Still no measure was introduced. Under the guidance of Dr. Chalmers the church pursued her course with steady unfaltering step; but she was not prepared to prolong the controversy indefinitely. Denying the right of the Court of Session to act as it had done, she freely conceded to the legislature the right of determining on what terms she held her temporalities; and if, fairly appealed to, the legislature declared that she held them on condition of rendering such obedience to the civil courts as they now required, she felt that she had no alternative but either to renounce her own principles or relinquish the temporalities. At a solemn convocation held in November, 1842, a large number of ministers signed and published a declaration that if no measure of relief were granted they would resign their livings. Up to the last, however, it was not believed that any very extensive secession would take place. In January 1843, the Government not only refused to grant the protection the church required, but put a final and peremptory negative on her claims of spiritual independence. And in March the House of Commons did the same by a large majority,—the Scotch members, however, voting in the proportion of more than two to one in her favor. The controversy was now closed, and it remained only for those clergymen who felt that they could not with a good conscience submit to the civil restraint imposed upon the church to adopt the only expedient now left to them and retire from the Establishment. On the 18th May, 1843, 470 clergymen withdrew from the General Assembly and constituted themselves into the Free Church of Scotland, electing Dr. Chalmers as their first moderator.

For two years previous to this final step, Dr. Chalmers had foreseen the issue, and in preparation for it had drawn up a scheme for the support of the outgoing ministers. For a year or two afterwards the establishment and extension of that fund, to which the Free Church owes so much of her stability, engaged a large share of his attention. He then gradually withdrew from the public service of the church, occupying himself with his duties as principal of the Free Church College, and in

perfecting his *Institutes of Theology*. In May, 1847, he was summoned before a committee of the House of Commons to give evidence regarding that refusal of sites for churches in which a few of the landed proprietors of Scotland who were hostile to the Free Church were still persisting. He returned from London in his usual health, and after a peaceful Sabbath (May 30) in the bosom of his family at Morningside, he bade them all good night. Next morning, when his room was entered and the curtains of his bed withdrawn, he was found half erect, his head leaning gently back upon the pillow, no token of pain or struggle, the brow and hand when touched so cold as to indicate that some hours had already elapsed since the spirit had peacefully departed.

CHALONER, SIR THOMAS, a statesman and poet, of a noble Welsh family, was born in 1515. Under Henry VIII. he was sent as ambassador to Charles V., whom he accompanied on his unfortunate expedition against Algiers in 1541. On his return he was appointed to the office of first clerk of the council. He gained the friendship of the Duke of Somerset; but after his fall he was obliged to live in retirement, and during the reign of Mary his Protestantism still kept him from the court. On the accession of Elizabeth he was received into high favor, and appointed ambassador, first to the Emperor Ferdinand I., and then to the court of Spain, where, however, he found himself so uncomfortable that after three years' stay he obtained permission to return home in 1564. He died the following year. Chaloner enjoyed considerable reputation as a poet.

CHÂLON-SUR-SAONE, a town of France, capital of an arrondissement in the department of Saône-et-Loire, 81 miles by rail north of Lyons.

It is identified with the ancient *Cabillonum*, originally a town of the *Ædui*. It was chosen in the 6th century by Gontram, king of Burgundy, as his capital; and it continued till the 10th to pay for its importance by being frequently sacked. The bishop, first appointed in the 4th century, obtained the title of count in the 12th, and retained it to the Revolution. In its modern history, the most important fact is the service the town rendered in the defence of the French territory in 1814, by keeping in check a division of the Austrian army. Population in 1888, 22,208.

CHÂLONS-SUR-MARNE, a town of France, capital of the department of Marne, is situated mainly on the right bank of the river, here crossed by a fine stone bridge, 107 miles E. of Paris on the railway to Strasbourg, and 25 S. of Rheims by another line. Châlons has long been an important industrial centre. As early as the 14th century, it was famous for its woollen cloth, which was known by the name of the town, afterwards corrupted into "shalloon;" and in the 18th it maintained an extensive manufacture of linen goods of various kinds. Besides these industries, it now carries on tanning and shoemaking, and the manufacture of cotton cloth and hosiery, while at the same time it is one of the principal seats of the champagne wine trade. The annual export amounts on an average to 1,000,000 bottles and the cellars of Jacquesson et Fils have storage room for 3,000,000. Population, 23,636.

It occupies the site of the chief town of the *Catalauni*, which became signalized by the defeat of Attila in the terrible conflict of 451.

In 1814 the Prussians took possession of the town after the expulsion of Macdonald, and in 1815 it was captured by Chernicheff. In 1856 Napoleon established a large camp, known as the Camp of Châlons, about 16 miles north of the town by the railway to Rheims. It was situated in the immediate neighborhood of Grand Mourmelon and Petit Mourmelon, and occupied an area

of 12,000, hectares or 29,650 acres. The troops were principally accommodated in tents, but also partly in wooden barracks. At the outbreak of the Franco-German war, the camp was occupied by the sixth army corps, under Canrobert, and it was afterwards held by McMahon. On the 22d August, 1870, the town of Châlons was occupied by the Prussians, and in the course of the war it formed an important point of communication.

CHALOTAIS. See LA CHALOTAIS.

CHALYBÄUS, HEINRICH MORITZ, a distinguished German writer on philosophy, was born on the 3d July, 1796. The facts of his life are few and unimportant. For some years after completing his university education he acted as lecturer in the Kreuz-Schule at Dresden, and while there his lectures on the history of philosophy in Germany, delivered before large audiences, drew attention to his rare merits as a thinker and writer. In 1839 he was called to a professorship in Kiel University, where, with the exception of one brief interval, he remained till his death on 2d September, 1862.

CHÁMBÁ, a feudatory state of Northern India, subordinate to the Punjab Government. Chámbá is bounded on the N. by a range of mountains, separating it from the province of Zaskár in Kashmír; on the E. by the outlying British *parganás* of Bangáhal and Lahaul, belonging to Kángra district; on the S. by mountain ranges which separate it from the Kángra valley; and on the W. by the provinces of Jammu and Kistwar in Kashmír. In shape the state is an oblong, its eastern and western sides being about 65 miles in length, and its mean width about 50 miles. It is traversed from east to west by a lofty range which divides it into two distinct valleys. The northern of these valleys is drained by the Chináb, which, rising in Lahaul, passes through Chámbá into Kashmír territory, having a general direction from south-east to north-west. The southern valley is drained by the Ráví, of which one head is in Chámbá territory, and the other in Bangáhal. The two branches unite a short distance below Barmur in Chámbá. The river then flows eastwards till close to Dalhousie it turns southwards, and after forming the boundary of the state for some distance, enters the plains of the Punjab. The estimated population of the state is 140,000 souls, and the estimated gross revenue, £18,937.

CHAMBERLAIN (Latin, *camerarius* from *camera*, a chamber; French *chambellan*), etymologically, and also historically to a large extent, an officer who superintends the arrangement of domestic affairs. Such were the chamberlains of monasteries, and the chamberlains of cathedrals, who had charge of the finances, gave notice of chapter meetings, and provided the materials required for various services. A royal chamberlain is an officer whose function is in general to attend on the person of the sovereign, and regulate the etiquette of the palace. The Roman emperors appointed this officer under the title *cubicularius*. During the Middle Ages, the royal chamberlain usually enjoyed the important privilege of keeping the king's signet ring; and it seems that the mayoralty of the palace, which gradually acquired such an authority as to overthrow the Merovingian dynasty in France, grew out of an office corresponding to that of the chamberlain. The chamberlain of the Pope enjoys very extensive powers, having the revenues of the church under his charge. In France, the office existed from very early times till the reign of Louis XIV., and was revived by Napoleon.

The Lord Great Chamberlain of England originally took rank after the Lord Privy Seal. The office is hereditary, and belonged at one time to the De Veres, from whom it descended by the female line into the family of Bertie. On the death of the fourth duke of Ancaster in

1777, it passed to the houses of Cholmondeley and Willoughby d'Eresby. From these families alternately a Lord Great Chamberlain is appointed on the death of the reigning monarch. The principal duties of this office are to take charge of the houses of parliament, and to attend on the sovereign at his coronation.

The Lord Chamberlain is an officer distinct from the Lord Great Chamberlain, and of greater importance, though his functions are less responsible than they were formerly. He is regarded as chief officer of the royal household; he has charge of a large number of appointments, such as those of the royal physicians, tradesmen, and private attendants of the sovereign; he is licenser of plays; and he examines the claims of those who desire to be presented at court. He is a member of the privy council, and holds office during the ascendancy of the political party to which he belongs.

CHAMBERS, EPHRAIM, an English author, was born at Kendal, Westmoreland, in the latter part of the 17th century. He was apprenticed to a globe-maker, but having conceived the plan of his *Cyclopædia*, he left this business, and devoted himself entirely to writing. The first edition of the *Cyclopædia*, which was the result of many years' intense application, appeared by subscription in 1728, in two vols. folio. It was dedicated to the king, and procured for Mr. Chambers the honor of being elected fellow of the Royal Society. He died in 1740.

CHAMBERS, GEORGE (1803-1840), a marine painter, born at Whitby, Yorkshire, was the son of a seaman, and for several years he pursued his father's calling. While at sea he was in the habit of sketching the different classes of vessels. His master, observing this, gratified him by cancelling his indentures, and thus set him free to follow his natural bent. Chambers then apprenticed himself to an old woman who kept a painter's shop in Whitby, and began by house-painting. He also took lessons of a drawing-master, and found a ready sale for small and cheap pictures of shipping. Coming afterwards to London, he was employed by Thomas Horner to assist in painting the great panorama of London for the Colosseum, and he next became scene-painter at the Pavilion Theatre. In 1834 he was elected an associate, and in 1836 a full member, of the Water-color Society. His best works represent naval battles. Two of these — the Bombardment of Algiers in 1836, and the Capture of Porto Bello — are in Greenwich Hospital. Not long before his death he was introduced to William IV., and his professional prospects brightened; but his constitution, always frail, gave way, and brought him to an early grave. He died on the 28th October, 1840.

CHAMBERS ROBERT (1802-1871), author and publisher, distinguished especially for his services to popular literature, was born at Peebles on the 10th July, 1802. His parents were of the middle class, but owing to the father's misfortunes in business the family were reduced to poverty, and had to leave Peebles for Edinburgh while Robert was still young.

In Edinburgh the family had a somewhat hard struggle with their straitened circumstances. Robert had been destined by a sort of tacit understanding for the church, and was placed for a time at a classical school with a view to his being sent to the university. This design had, however, to be abandoned. After enduring many hardships, and making two unsuccessful attempts to fill situations in mercantile houses in Leith, he commenced business on his own account as a bookstall-keeper in Leith Walk, on the advice of his elder brother and future partner, William. He was then only sixteen, and his whole stock consisted of a few old books belonging to his father. By slow degrees the stock was increased and the business extended. A similar but dis-

ting concern was carried on during the same period with like success by William, and after a number of years the two brothers were united as partners in the now well-known publishing firm of W. and R. Chambers.

In the beginning of 1832 his brother William, after consultation with him, started a weekly publication under the title of *Chambers' Journal*, which speedily attained an immense circulation, and still holds a leading place in the cheap popular periodical literature of which it was the pioneer. Robert's connection with it was at first only that of a contributor. After fourteen numbers had appeared, however, he became associated with his brother as joint-editor, and from that period he wrote for it nearly all the leading articles, which took the form of essays—moral, familiar, and humorous. Written in an easy, graceful style, entirely free from any affectation of condescension, always interesting, and carefully avoiding the debatable ground of religion and politics, they contributed more perhaps than anything else to the remarkable success of the *Journal*.

Among the other works of which he was in whole or in part the author, the *Cyclopædia of English Literature*, the *Life and Writings of Burns*, *Ancient Sea Margins*, the *Domestic Annals of Scotland*, and the *Book of Days* were the most important. The *Cyclopædia of English Literature* contained a series of admirably selected extracts from the best authors of every period, "set in a biographical and critical history of the literature itself." The biographies were gracefully written, and the critical estimates, though brief, were just and comprehensive. For the *Life of Burns* he made diligent and laborious original investigations, gathering many hitherto unrecorded facts from the surviving acquaintances of the poet, and especially from his sister, Mrs. Begg, to whose benefit the whole profits of the work were generously devoted. The poems are interwoven into the narrative in their proper chronological order, and with all the information that could be obtained as to the circumstances of their composition. In connection with the work on *Ancient Sea Margins*, it may be mentioned that its author ranked high as a scientific geologist, and that he had availed himself of tours in Scandinavia and Canada for the purpose of geological exploration. His knowledge of geology was one of the principal grounds on which the authorship of the celebrated anonymous work, *The Vestiges of the Creation*, was very generally attributed to him. As, however, neither he himself nor any one entitled to speak for him ever acknowledged the work, its authorship remains a mystery. The *Book of Days* was his last publication, and perhaps his most elaborate. Help on which he had depended having failed him, he was left to do the work almost alone, and it is supposed that his excessive labor in connection with it hastened his end. He died at St. Andrews, where he had built a pleasant residence for himself several years previously, on the 17th March, 1871. Two years before his death the university of St. Andrews had conferred upon him the degree of Doctor of Laws, in consideration of his distinguished literary merit, and he was a fellow of several learned societies.

CHAMBERSBURG, a town of the United States, the capital of Franklin county, Pennsylvania, is situated about 135 miles west of Philadelphia, in a populous district in the great limestone valley that extends along the east side of the Blue Mountains. It has a court-house, a national bank, ten churches, and a Presbyterian college for young ladies; and it manufactures cotton, wool, paper, and iron. In 1864 a large part of the town was burned by the Confederates under Early. Population in 1890, 8,000.

CHAMBÉRY (in Italian CIAMBERI), a city of

France, capital of the department of Savoy, pleasantly situated in a fertile district, between two hills, on the rivers Laisse and Albana, 46 miles S.S.W. of Geneva. Chambéry is the seat of an archbishop, and of a superior tribunal; and has also a Jesuit college, a royal academical society, a society of agriculture and commerce, a public library, with 20,000 vols., a museum, a botanic garden, and many charitable institutions. It manufactures silk-gauze, lace, leather, and hats, and has a considerable trade in liquors, wine, lead, copper, and other articles. Overlooking the town is the Rock of Lemenc, which derives its name from the *Lemincum* of the Romans; and in the vicinity is Charmettes, for some time the residence of Rousseau.

CHAMBORD, a magnificent Gothic château of France, in the department of Loire-et-Cher, 10 miles east of Blois, on the left bank of the Cosson. It was commenced by Francis I. in 1532, carried on by Henry II., and at length finished by Louis XIV. It is built of black stone, with a profusion of towers, turrets, and minarets, and the interior is fitted up with great magnificence. The park is enclosed by walls seven leagues in circumference. The castle is famous as the residence of Diana of Poitiers, and of Stanislaus, king of Poland, whose son-in-law, Louis XV., bestowed it upon Marshal Saxe. It was given by Napoleon to Marshal Berthier, from whose widow it was purchased by subscription in 1821, and presented to the duke of Bordeaux, the representative of the older branch of the Bourbons, who has assumed from it the title of Count de Chambord.

CHAMELEON, the common name of a well-defined family of Lizards, forming the tribe *Dendrosauria*, and containing the single genus *Chamælo*, which includes about twenty known species, bearing a close family resemblance to each other, and differing very widely from all other lizards. They are small creatures, not usually exceeding 7 inches in length exclusive of the tail, which in general is as long as the body. The body is greatly compressed, often with a crest—toothed or otherwise—along the back and belly, and the skin is covered with granular specks, giving it the appearance of shagreen. The large pyramidal head is supported by a short neck composed of five vertebræ, instead of eight, as in the majority of saurians; and there is no true sternum, although the anterior ribs are joined to the mesial line, which thus takes the place of a breast-bone, while the ribs which follow are so connected together as to form a bony circle for the protection of the abdominal region. Unlike other lizards, the chameleon has the body raised high on its legs, and the toes, which are five in number on both posterior and anterior limbs, are divided into two opposable groups or bundles, closely resembling those of a parrot, and equally serving the purpose of prehension. The tail, by the greater thickness of which at the base the male is distinguishable from the female, is also prehensile, and is of the greatest service in giving support and security to the climbing chameleon. The lungs are large, and are connected with air-vessels distributed throughout the body, by the inflation of which a certain transparency is given to the body, as well as a plumpness which at once disappears on their collapse, and this, together with the fact that the chameleon can live apparently in a thriving condition for weeks without food, seems to have given rise to the ancient belief that this singular creature lived on air. The eyes of the chameleon are large, globular, and covered with a circular disk formed by the junction of the two lids and having a central aperture which acts as an external pupil, being capable of dilatation or contraction at will. In moving, the eyes act independently of each other, so that while the one stares upwards the other may be eagerly following the motions

of an insect beneath, or the one may even be directed backwards while the other watches in front. This extraordinary range of vision amply compensates for the small degree of mobility in the neck and general slowness of motion characteristic of the chameleon. The tongue is equally remarkable, being sub-cylindrical, worm-like, and extremely extensile, with the end somewhat enlarged and hollow, and supplied with a glutinous secretion. It is by means of this organ, which is capable of being protruded to a length of six or seven inches, that chameleons obtain their food. They are arboreal in their habits, supporting themselves on the branches of trees by their grasping hand-like feet and prehensile tails. In their movements they are slow and deliberate, and when watching for the insects which form their sole food, they remain motionless for hours, partly concealed by the foliage, and still more by the exercise of the faculty which they possess above all other creatures of changing their color so as to resemble surrounding objects. Their power in this direction has, however, been greatly exaggerated.

They cannot as was at one time supposed, assume in succession all the colors of the rainbow; but under certain conditions, by no means well ascertained, their normal bluish ash color may give place to a green or yellowish hue, with irregular spots of a dull red, or it may become considerably paler so as to approach to whiteness. Thus an observer reports recently that he saw a chameleon making its way along the top of an old wall near Ephesus, the stones of which were of a dark color, occasionally varied by a block of white marble, and he noticed that no sooner did the creature rest on one of the latter than it gradually became less visible, owing evidently to its assumption of a color somewhat harmonizing with the marble on which it rested. This curious phenomenon was observed by the earliest writers of natural history, and gave rise to much speculation. Aristotle held that the change of color only took place when the chameleon was inflated with air, to which therefore it was owing; Pliny that its varying colors were borrowed from surrounding objects; while Wormius was the first to attribute those variations to the play of the emotions and passions; but Milne Edwards, in a paper published in the *Annales des Sciences*, showed that, whatever the exciting cause of these changes in color, whether due to the emotions, the inflation of the lungs, or exposure to the sun's rays, they were rendered possible only by the presence in the skin of the chameleon of two layers of differently-colored pigment, placed one over the other, and so arranged that both may appear simultaneously on the surface, or the one may be displaced to a greater or less extent by the other, the color varying with the amount of such displacement. Thus protected by its coloring, the chameleon awaits the coming of its prey, and no sooner does an insect place itself within reach of its worm-like tongue than that organ, leaping forth from its sheath with lightning speed, fixes its victim on the glutinous tip, which is forthwith engulfed with equally astonishing rapidity. The eggs of the chameleon are deposited under leaves on the ground. They are numerous, round, and covered with an exceedingly porous shell formed of calcareous matter. The species composing the family are inhabitants chiefly of Africa and the islands adjacent, notably of Madagascar, to which about a third of all the known species are confined. The latter include such curious forms as the Rhinoceros Chameleon, the male of which has a horn-like tubercle at the end of the muzzle; also a form recently described by Günther, in which the tail is so short as to be almost useless for prehension, a defect which seems compensated for by the presence of an additional denticle at

the inner base of each claw, and of a spine projecting from the side of each finger and toe, which must add greatly to the creature's prehensile power.

CHAMFORT, NICOLAS (1741-1794), one of the most famous talkers of a century rich in conversational excellence, was born at a little village near Clermont in Auvergne. The illegitimate child of a *dame de campagne*, he never knew his father, and started in life as plain Nicolas, that being the name bestowed on him by his mother. A journey to Paris resulted, through some now unknown influence, in the boy's obtaining a bursary at the Collège des Grassins. He worked hard, and won nine prizes out of ten in two years. It is significant of his cynical and original turn of mind that he should have been the only critic disposed to be severe on the Latin hexameters that crowned his college reputation, and that in after years he should have regarded as waste the time bestowed on the acquisition of academical knowledge.

About this time he assumed that name of Chamfort he was afterwards to render famous, and plunged hap-hazard into the press for literary work and renown. He met with scant success. Repulsed by editors and booksellers alike, he took to making sermons at a louis each for an incompetent brother; and in this way, scribbling now and then for the journals, he contrived to exist for a whole year. A successful competition for one of the Academy's prizes opened to him drawing-rooms of the upper world, and he became fashionable. Madame Helvétius entertained him at Sèvres for some years. Chabanon, however, gave up to the destitute wit his pension of 1200 livres on the *Mercur de France*, and about the same time Chamfort took two more Academy prizes for his eulogies on Molière and on La Fontaine, by which he also won a hundred louis from Necker, and obtained an enormous reputation. And as he wrote little and talked a great deal, his reputation increased, till under protection of the Duchesse de Grammont, he went to court. His poor tragedy, *Mustapha et Zeangir*, was played at Fontainebleau before Louis XVI. and Marie Antoinette; the king added 1200 livres to the gift of Chabanon, and the Prince de Condé made Chamfort his secretary. The man was then some forty years of age; he was fast growing misanthropical; he was "*gai mais ombrageux*;" he was a Bohemian naturally and by habit. He resigned his post in the prince's household, and retired into solitude at Auteuil. There, comparing the authors of old with the men of his own time, he uttered the famous *mot* that proclaims the superiority of the dead over the living as companions; and there too he presently fell in love. The lady, attached to the household of the Duchesse de Maine, was forty-eight years old, but clever, amusing, a woman of the world; and Chamfort married her. They left Auteuil, and went to Vaudouleurs, near Etampes, where in six months Madame Chamfort died. The widowed epicurean travelled, lived in Holland for a space with M. de Narbonne, and returning to Paris received the Academy arm-chair left vacant by the death of Sainte-Pelaye in 1781. He haunted the court, and made himself loved in spite of the reach and tendency of his unalterable irony; but he quitted it forever after an unfortunate and mysterious love affair, and was received into the house of M. de Vaudreuil. Among the many men of mark assembled round him there by his fine faculty of pregnant speech, he made the acquaintance and gained the friendship of Mirabeau, whom he assisted with orations, and whom he followed heart and soul into storm and tumult of the young Revolution.

He forgot his old friends; he frequented the clubs, and for a time was secretary of that of the Jacobins; he became a street-orator; he entered the Bastille

among the first of the storming party; he worked for the *Mercur de France*, a royalist print in which he depreciated kingship. With the reign of Marat and Robespierre, however, his uncompromising Jacobinism grew critical, and with the fall of the Girondins his political life came to an end. But he could not restrain the tongue that had made him famous; he no more spared the Convention than he had spared the Court. His notorious republicanism failed to excuse the sarcasms he lavished on the new order of things; and denounced by an assistant in the *Bibliothèque Nationale*, to a share in the direction of which he had been appointed by Roland, he was taken to the Madelonnettes. Released for a moment, he was threatened again with arrest; but to this brilliant free-lance of thought captivity had been intolerable, and he had determined to prefer death to a repetition of the moral and physical restraint to which he had been subjected. He attempted suicide, with pistol and with poniard; and, horribly hacked and shattered, dictated to those who came to arrest him the well-known declaration—" *Moi, Sebastien-Roch-Nicolas Chamfort, declare avoir voulu mourir en homme libre plutôt que d'être conduit en esclave dans une prison*"—which he signed in a firm hand and in his own blood. He did not die at once, but lingered on a while in charge of a gendarme, for whose wardship he paid a crown a day.

The writings of Chamfort, which include comedies, political articles, literary criticisms, portraits, letters and verses, are colorless and uninteresting in the extreme. As a talker, however, he was of extraordinary force. His *Maximes et Pensées*, highly praised by John Stuart Mill, are, after those of La Rochefoucauld, the most brilliant and suggestive sayings that have been given to the modern world.

CHAMISSO, ADALBERT VON, poet, botanist, and voyager, was by family, birth, and the education of childhood, a Frenchman, by his after-life, his marriage, and his literary activity, a German. He was born in 1781 at the castle of Boncourt in Champagne, and traced his descent from a respectable line of French knights, who derived their title from the ancient town of Chameçon, or *Cambisonum*, near Châtillon-sur-Seine. The quiet home-life at Boncourt was broken up by the Revolution in 1790, and the Chamissos, parents and children, were forced, like so many of their rank, to leave their country, and find such footing as might chance in a foreign land. And though in after years the main part of the family was permitted to settle again on their native soil, several of the younger members were left behind, where they had begun to take root. Of these was Adelbert, who had in 1796 obtained a situation as page to the queen of Prussia, and in 1798 entered the military service with the rank of ensign. To his professional studies he devoted himself with ardor, and he attracted the royal attention by some of his writings; but in the society of his comrades he was made bitterly to feel that he was not regarded as one of themselves, and it was not altogether without regret that he found himself in 1806 set free from the army. Meanwhile he had formed a friendship with several congenial spirits, such as Hitzig, Varnhagen von Ense and Neumann; and with the last two he joined in the publication of the *Musenalmanach*, which first appeared in 1803. A visit to Madame de Stael at Coppet was a pleasing interruption to his ordinary course of life, and has afforded the reader of his letters some amusing descriptions of that eccentric woman, who alternately flattered Chamisso for his ability and scolded him soundly for his inattention to etiquette. The study of botany, which he began at Coppet, was prosecuted with so much persistence and success that it be-

came his professional subject. In 1815 he was chosen botanist of the expedition for the circumnavigation of the world, which was originated by Romanzoff, and conducted by Kotzebue; and on his return in 1818 he was appointed custodian of the botanical gardens at Berlin. Much to his own advantage and comfort, he obtained the hand of Antonie Piaste, a young lady of eighteen years; and the rest of his life was spent in steady professional labor, relieved by kindly intercourse with an increasing circle of friends. Among those with whom he became acquainted were August Neander, Freiligrath, and Andersen.

It cannot be said of Chamisso, as he himself affirmed of Heine, that he was a poet to the very tips of his fingers; but the poetical element in his nature was genuine and strong, and, in spite of the unfavorable circumstances of his life, his tendency towards literary expression was very early displayed. In estimating his success as a writer, it should not be forgotten that he was cut off from his native speech and from his natural current of thought and feeling. But he has none the less enriched his adopted language with several poems of undisputed and enduring value. He often deals with gloomy and sometimes with ghastly and repulsive subjects; and even in his lighter and gayer productions there is too frequently an undertone of sadness or of satire.

CHAMOIS (*Rupicapra tragus*), the *Gemse* of the Germans, is the only Antelope found in Western Europe, and forms the type of the Rupicaprine or goat-like group of that family. It resembles the roebuck in size, being about 3 feet long and 2 feet high at the shoulders, and is specially characterized by the form of its horns. These are from 6 to 8 inches long, of a black color, slender, round, and slightly striated, rising perpendicularly from the forehead, and suddenly hooked backwards at their extremities. They are common to both sexes, although in the female they are less uncinated. The body is covered with long hair of a chestnut brown color in winter, when it is also longest, that of the head being paler, with a dark brown streak on each side. At other seasons the color is somewhat lighter, in spring approaching to grey. Underneath the external covering the body is further protected from the cold by a coat of short thick wool of a greyish color. The tail is short and black, the ears pointed and erect; the hoofs are solid, with the outer edges higher than the soles, and are thus admirably adapted for laying hold of the slightest projection or roughness on the face of the rocky precipices it frequents. The chamois is gregarious, living in herds of 15 or 20, and feeding generally in the morning or evening. The old males, however, live alone except in the rutting season, which occurs in October, when they join the herds, driving off the young males, and engaging in fierce contests with each other, that often end fatally for one at least of the combatants. The period of gestation is twenty weeks, when the female, beneath the shelter generally of a projecting rock, produces one and sometimes two young. They are said to attain the age of thirty years.

The chamois inhabits the Alpine regions of Central Europe from the Pyrenees to the Caucasus, and extends eastwards as far as Persia, frequenting the wildest and most inaccessible peaks and ravines of these mountain ranges. In summer it ascends to the limits of perpetual snow, being only outstripped in the loftiness of its haunts by the ibex; and during that season it shows its intolerance of heat by choosing such browsing grounds as have a northern exposure. In winter it descends to the wooded districts that immediately succeed the region of glaciers, and it is there only that it can be successfully hunted. Chamois are exceedingly shy; and their

senses, especially those of sight and smell, are exceedingly acute. The herd never feeds without having a sentinel posted on some suitable prominence to give timely notice of the approach of danger; this is done by stamping on the ground with the fore feet, and uttering a shrill whistling note, which puts the entire herd on the alert. No sooner is the object of alarm scented or seen than each one seeks safety in the most inaccessible situations, which are often reached by a series of astounding leaps over crevasses, up the faces of seeming perpendicular rocks, or down the sides of equally precipitous chasms. The chamois will not hesitate, it is said, thus to leap down 20 or even 30 feet, and this it effects with apparent ease by throwing itself forward diagonally and striking its feet several times in its descent against the face of the rock. Chamois-shooting is most successfully pursued when a number of hunters form a circle round a favorite feeding ground, which they gradually narrow; the animals, scenting the hunters to windward, fly in the opposite direction, only to encounter those coming from leeward. Chamois-hunting, in spite of, or perhaps owing to, the great danger attending it, has always been a favorite pursuit among the hardy mountaineers of Switzerland and Tyrol, where it is said to be still moderately plentiful. The chamois feeds in summer on mountain herbs and flowers, and in winter chiefly on the young shoots and buds of the fir and pine trees. It is particularly fond of salt, and in the Alps sandstone rocks containing a saline impregnation are often met with hollowed by the constant licking of these creatures. The skin of the chamois is very soft; made into leather it was the original *shammy*, which is now made, however, from the skins of many other animals. The flesh is prized as venison. The chamois can be at least partially tamed, and in that state, according to Major Smith, it evinces all the mixture of impudence, timidity, and curiosity observed in goats.*

CHAMOMILE or CAMOMILE FLOWERS, the *flores anthemidis* of the *Pharmacopœia*, are the capitula or flower-heads of *Anthemis nobilis* (Nat. Ord. *Compositæ*), a plant indigenous to England and Southern Europe. It is extensively cultivated for medicinal purposes in Surrey, at several places in Saxony, and in France and Belgium,—that grown in England being much more valuable than any of the foreign chamomiles brought into the market. Chamomile is used in medicine in the form of an infusion, made with $\frac{1}{2}$ oz. of the flowers to 10 oz. of boiling distilled water.

CHAMOUNI, or CHAMONIX, a celebrated valley and village of the French Alps, in the department of Upper Savoy, and the arrondissement of Bonneville. The village, which is the great centre for tourists in the Mont Blanc district, is situated 22 miles S. of Martigny, and 50 miles E.S.E. of Geneva, at a height of about 3400 feet above the level of the sea. A great part of it was destroyed by fire in 1855, and it has thus undergone a striking change in its appearance. It now possesses numerous hotels, a museum, and baths; and an English chapel was opened in 1860. Upwards of 15,000 tourists are accommodated in the course of a year, the greater portion being from England, America, and France. The busiest months are August and September. Excellent butter and cheese are prepared by the peasants, and flax and honey are exported. The valley, which is bounded on the S. and E. by Mont Blanc and others of the Pennine Alps, and on the W. and N. by Brévent and the Aiguilles Rouges, is about 12 miles in length from northeast to southwest, with an average breadth of two miles; it forms the upper part of the basin of the Arve, which traverses its entire length. It is the most celebrated in the Alps for the

picturesque grandeur of its glaciers, which are only rivaled by those of the Zermatt in the Bernese Oberland. The view from the village up to the top of Mont Blanc is remarkable for its simple and massive sublimity.

The name of Chamouni is a corruption of the words *Campus Munitus*, or Champ Muni, the Defenced Field, applied by the Benedictine monks to the site of the monastery here, probably with allusion to the protection afforded by the "strength of the hills." This establishment was founded some time before 1099, on the spot that is now occupied by the village church.

CHAMPAGNE, a former province of the kingdom of France, with an area of about 10,500 square miles, bounded on the N. by Liège and Luxembourg, on the E. by Lorraine, on the S. by Burgundy, and W. by Isle de France and Picardy. It now forms the departments of Ardennes, Marne, Aube, and Haute Marne, with part of Seine-et-Marne, Meuse, Aisne, and Yonne.

Champagne began to be known by its modern name of Campania, or the Plain-Country, in the sixth century, when it formed a duchy of the kingdom of Austrasia. During the ninth century it was part of the great courtship of Vermandois, and on the disintegration of that domain about 943, it took the rank of an independent courtship. In 1030 the title passed to the house of Blois in the person of Odo II., who was succeeded by Stephen II., Theobald I., Hugh I., Theobald II., surnamed the Great, Henry I., Henry II., Theobald III., Theobald IV., Theobald V., and Henry III. Of these the most important was Theobald IV., famous for his romantic passion for Blanche of Castile, his political versatility, and his poetic skill. By the death of Henry III., who was also king of Navarre, Champagne passed into the hands of his daughter Jeanne, who afterward married Philip the Fair of France.

CHAMPAGNE WINE is the produce of vineyards in the above-mentioned province of Champagne. There are white and red champagnes; and the white is either sparkling or still. Sparkling or effervescent (*mousseux*) champagne is the result of a peculiar treatment during fermentation. In December the wine is racked off, and fined with isinglass, and in March it is bottled and tightly corked. The fermentation being incomplete when the wine is bottled, the carbonic acid gas generated in a confined space dissolves in the wine and communicates the sparkling property to it.

CHAMPAGNE, PHILIPPE DE (1602-1674), a celebrated painter, was born at Brussels of a poor family. He was a pupil of Fouquier; and, going to Paris in 1621, was employed by Du Chesne to paint along with Nicholas Poussin in the palace of the Luxembourg. His best works are to be found at Vincennes, and in the church of the Carmelites at Paris, where is his celebrated Crucifix, a signal prospective success, on one of the vaultings.

CHAMPAIGN, a city of Champaign county, Ill., 129 miles south of Chicago, on the main line of the Illinois Central railroad, at its intersection with the Ohio, Indiana and Western, and near the crossing of the Wabash, St. Louis and Pacific. It contains tile factories, grist mills, planing mills, machine shops, and three newspaper offices. There is a national bank and three other banks in the town. Champaign is the seat of the Illinois Industrial University, and of a female seminary. Population (1890), 5,827.

CHAMPARAN, a British district in the Behar Province, under the jurisdiction of the Lieutenant-Governor of Bengal. It is bounded on the N. by the independent state of Nepal; on the E. by the River Bághmatí, which separates it from the district of Tirhut; on the S. by the district of Sáran and the Bará Gandak river.

CHAMPION. In the judicial combats of the Middle Ages it was allowed to women, children, and aged persons, except in cases of high treason or of parricide, to appear in the lists by a representative. Such a hired combatant was called a champion. Those who followed this profession were generally of the lowest class, and were held disreputable; for besides the perils of the combat, they were liable to be executed as well as their clients. They were obliged to wear a peculiar dress of leather, and peculiar armor, which was also held disreputable. They were not allowed to fight on horseback, and appeared in the lists with their hair and nails cut short. In modern times the term is used to designate any man or organization of men who excel in any game or occupation in which a number compete for supremacy.

CHAMPLAIN, a considerable lake of North America, lying between the States of New York and Vermont, and penetrating for a few miles into Canada. It is 126 miles in length, and from one to fifteen in breadth, lying nearly north and south, and contains a great number of small islands, most of which belong to Vermont.

CHAMPLAIN, SAMUEL DE, the governor of the first French settlers in Lower Canada, was born at Brouage in 1567. Owing to quarrels with the Indians, the settlement seemed likely to fail; but, under the viceroyalty of the Duc de Montmorenci, and still more under that of the Duc de Ventadour, it began to flourish. In 1629 it met with a reverse, Champlain being forced to surrender to an English fleet commanded by three brothers named Kirk. He was carried to England, but was restored to liberty in 1632. He returned to Canada in the next year, and died there two years afterward (1635).

CHAMPOLLION, JEAN FRANÇOIS, one of the earliest and most distinguished of Egyptologists, called *le Jeune* to distinguish him from Champollion-Figeac, his elder brother, was born at Figeac, in the department of Lot, in 1790. He was educated by his brother, Champollion-Figeac, professor of Greek at Grenoble, and was then appointed government pupil at the Lyceum which had been recently founded. In 1809 he was made professor of history in the Lyceum of Grenoble, and there published his earlier works. He was sent by Charles X., in 1824, to visit the collections of Egyptian antiquities in the museums of Turin, Leghorn, Rome, and Naples; and on his return he was appointed director of the Egyptian museum at Louvre. In 1828 he was commissioned to undertake the conduct of a scientific expedition to Egypt in company with Rosellini, who had received a similar appointment from Leopold II., Grand Duke of Tuscany. He remained there about a year. In March, 1831, he received the chair of Egyptian antiquities, which had been created specially for himself, in the Collège de France. He was engaged with Rosellini in publishing the results of Egyptian researches at the expense of the Tuscan and French governments, when he was seized with a paralytic disorder, and died at Paris in 1832.

CHAMPOLLION-FIGEAC, JEAN JACQUES, elder brother of Jean François Champollion, was born at Figeac in 1778. He became professor of Greek and librarian at Grenoble, then librarian of the imperial library at Paris, and, when he lost this post in 1828, librarian to Louis Napoleon at Fontainebleau. He edited several of his brother's works, and was also author of a number of original works on philological and historical subjects.

CHANCE is defined as that which determines the course of events, in the absence of law, ordinary causation, or Providence.

CHANCEL (Lat. *cancellus*, a screen). The chancel, choir, or eastern part of a church, was often separated

from the nave by a screen of lattice-work. As it was in this part of the church that the service was performed previous to the Reformation, the clergy were held to have a special right to it.

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CHANCELLOR. Various origins have been attributed to this word, so important in its modern use over the greater part of the civilized world; but all of them are of a trivial nature, bearing little reference to the subsequent application of the term. The word *chancel* is connected with the most ordinary and apt of these origins. It supposes the chancellor to have been so called because he sat within a lattice or screen partitioned from the court of justice or hall of audience. There was no such office in the early civil law, and even under the later Western emperors the cancellarius appears to have been a mere subordinate person, a sort of clerk of the chamber or scribe, who saw the petitioners, and arranged about their business. Gradually he appears to have risen to the rank of an adviser or conscience-keeper, on whose decision the fate of suitors in a great measure depended.

The Lord High Chancellor of Great Britain is a great state officer, with varied and disconnected functions. He is in official rank the highest civil subject in the land out of the royal family, and when raised to the peerage, as he invariably is, he takes precedence immediately after the archbishop of Canterbury. His functions have sometimes been exercised by a "lord keeper of the great seal;" but there appears to be no essential difference between the two offices, save that the keeper is appointed by mere delivery of the seal, which is of itself sufficient to confer all the powers appertaining to the office, while a chancellor receives letters patent along with it. As a great officer of state, the chancellor acts for both England and Scotland, and in some respects for the United Kingdom, including Ireland. As an administrative officer, as a judge, and as head of the law, he acts merely for England. In the first class of functions he acts as prolocutor, speaker or chairman of the House of Lords, and in this capacity it sometimes falls to him to adjudicate in Scottish law, since he often leads the judgment of the house on appeals. (See **APPEAL**.) By the Treaty of Union, one great seal was appointed to be kept for all public acts. Hence, in this department, the chancellor's authority extends to the whole of Britain, and thus the commissions of the peace for Scotland as well as England issue from him.

CHANCELLORSVILLE, the name of a plantation in Spotsylvania county, Va., the seat of the Chancellor family—noted as being the scene of a bloody battle between the Federal forces under Gen. Joe Hooker, and the Confederates under Gen. R. E. Lee, fought May 2-4, 1863. On December 13, 1862, Gen. A. E. Burnside had fought the battle of Fredericksburg, and had been defeated, leaving the Army of the Potomac almost hopelessly demoralized. "Fighting" Joe Hooker, who had succeeded Burnside, had reorganized the army and by his judicious measures restored its *morale*. The Confederate army still occupied the position it had held at the battle of Fredericksburg, on the hills around the city, and, taught by the sad experience of Burnside in the previous year, Hooker saw that it would be madness to attempt to turn the Confederate

position by a direct assault. He therefore decided on a flank movement. His army consisted of 132,000 men and was divided into seven corps, among which were 12,000 cavalry and an artillery force of 400 guns. The Confederates opposed to this a force of less than 60,000 men, with about 3,000 cavalry, and artillery mounting less than 200 guns—the greater part of Longstreet's corps having been detached and sent to Petersburg, Va. Hooker had decided to attempt to turn Lee's left flank, so, on the morning of April 13th, he ordered his entire cavalry force under General Pleasanton across the Rappahannock river, with the intention of pushing them forward to Gordonsville, where they were to attempt to cut the lines of Lee's communication with Richmond. A sudden rise in the river prevented the execution of this order, and it was nearly two weeks later before the movement of the army began. Stuart, with his cavalry, did not attempt to prevent the crossing of the river, for his idea was that the attack was directed toward Gordonsville, and on April 29th three corps of the Federal army had crossed the North Fork of the Rappahannock and the Rapidan rivers, and were marching along the south bank of the Rappahannock, with the intention of gaining Lee's rear and turning his left. At the same time the First, Third and Fourth corps of the Federal army, under General Sedgwick, crossed the Rappahannock east of Fredericksburg, as a demonstration, but with orders to attack if the Confederate forces appeared in considerable numbers, and to press them in their retreat to the Confederate capital—if they retreated. The first three corps (which were under the command of General Slocum) reached Chancellorsville about 2 P. M. the next day. They were 40,000 strong. That same afternoon they were joined by Couch, with Hancock's and French's divisions, and Hooker established his headquarters at Melzi Chancellor's house. The soldiers were congratulated on the success of the flank movement, and for a time it seemed as if victory was assured and the destruction of the Confederate army equally certain, for Lee lay between Sedgwick and Reynolds on his right, below Fredericksburg; while Hooker, with four corps, menaced his left flank, and was only confronted by General Anderson's command—not nearly half as large as his own. General Lee, to whom Stuart had reported the march and strength of Hooker's columns, at once saw that the main attack was to be on the left; so, leaving about 8,000 men under Early to hold the works at Fredericksburg, he at once hastened to the site of Anderson's position, hurrying McLaws forward to the support of the former, while at the same time he directed Gen. T. J. Jackson, who commanded the Confederate right, to at once bring his corps to the assistance of the left. Meantime he fortified Anderson's position, which was on the top of a low hill two miles east of Chancellorsville. Upon the arrival of Jackson at the front, on the left, he at once ordered an advance, which move was immediately productive of good fruits. Sickles had by this time formed a junction with Hooker, from the north side of the Rappahannock, and about 11 o'clock Hooker sent Meade, with two divisions, along the river road to Banks' ford, while Sykes and Slocum had been sent in nearly parallel routes along two roads running at nearly right angles to the river. Sedgwick was also ordered to demonstrate from below, but the order arrived too late to affect the first day's fighting. These lines of march were all covered by the Confederate forces, but although at one time Sykes' column was outflanked, it was speedily relieved by Hancock. Up to this time everything seemed favorable to Hooker's movements, yet just before 2 P. M., the time that was appointed for the junction of his different

columns of attack, he sent peremptory orders for them all to retire toward Chancellorsville. This order was fatal to the *morale* of the army, and, in addition, compelled him to fight in the difficult country of the Wilderness—a movement on his part which the military critics have held to be indefensible. He massed his forces about the Chancellor House, in the form of a letter J, Meade occupying the extreme left and Howard the right, with Slocum and Sickles between, while Hancock lay to the east of the Chancellor House, across the river road and the turnpike from Orange Court-house to Fredericksburg. Lee's first demonstration against the Federals was at this point, on Friday morning, but he soon saw that this position was too strong for successful assault in front. Accordingly, on Jackson's advice, he determined to attempt to flank the right of the Northern army. On Saturday morning Jackson's corps moved westward, under cover of dense woods, toward the Union right, using Stuart's cavalry to mask his movements. Several times, however, his main column came into contact with the Federals, but each time the intention of the great Confederate leader was misinterpreted, and he was supposed to be on the retreat toward Gordonsville. At one time it was thought that it was practicable to turn Jackson's flank, but the intimate knowledge of the country in the possession of that general enabled him to turn out into a by-road and avoid such a disaster. Hooker, it is claimed, divined the intentions of Jackson, and ordered Howard to reinforce and fortify the right, but his orders were not obeyed, and although Howard's division commanders notified him in the afternoon that the Confederates were massing in the woods on the Federal right, both Howard and Hooker seemed to feel no apprehension of attack in this quarter, although the right was the weakest point in the Federal line. About 4 P. M. Jackson had reached the best locality for his intended attack, having crossed the turnpike road, which put him in a position to advance from the northwest. Colston's and Rhodes' divisions led, while A. P. Hill supported them. At 6 P. M., while the Union troops were engaged in preparing their suppers, Jackson's men deployed at a double-quick, and, with the wild yell they gave on such occasions, charged against the command of Devens, driving back in utter confusion all the forces confronting them, although his reserves and a portion of Schurz's command had been hurriedly thrown forward to oppose the Confederates. It was not until Buschbeck's brigade (which had been entrenched across the road, and was supported by artillery) was reached that the Southern army received even a temporary check. The retreating Federals had reached Hooker's headquarters before that general seemed aware that anything had gone wrong, and he immediately ordered up reinforcements; but this was of no avail, and had it not been that the troops of Jackson had become broken by their rapid advance over so many natural obstacles they would not have suffered any perceptible check. Meantime Lee had engaged the troops of Hooker on the left to prevent reinforcements being sent to their right wing, but Meade, with his detached command on the extreme left, had not yet fired a gun. After night-fall Jackson, in attempting to reform his lines which had, as before stated, become irregular from the broken nature of the country, was wounded (he died a few days after), and was succeeded by Stuart. Saturday night Sickles made a desultory attack on Jackson, but was forced to retire on Chancellorsville, while the Eleventh corps, which was badly demoralized, was sent to the extreme left to reorganize, and Meade was moved up closer to Chancellorsville. Reynolds' corps, which had come up from the north side of the river, although fresh and ready to fight, was

detailed to guard the fords of the river, thus leaving the three latter corps inactive during the next day's (Sunday's) fighting. During this interval Lee's left had formed a junction with Stuart's (Jackson's) right, and early Sunday morning the attack was renewed, and large bodies of raw troops in the Union command, holding the plank road, were taken by the veterans of Jackson's corps, who, maddened by the loss of their leader, fought like devils. The artillery of the Confederate forces, which had been massed on Hazel Grove Hill, under Gen. Lindsay Walker, poured a murderous fire on the Federals, and Williams, Birney, and Sickles were driven back to the Chancellor clearing. About this time Hooker was wounded by concussion from a shot striking a post against which he was leaning, and on his recovery ordered a retreat to his second line at the White House, about half a mile to the north of the Chancellor House. At this time the Southern troops were entirely exhausted, and had the Union lines been reënforced the issue of the battle would have been far different; yet, though three corps lay idle within easy reach—despite the fact that their commanders had requested leave to enter the fight—no reënforcements were allowed, and the victory was left with a handful of troops that seemed a certain prey to a well-directed attack. While the fighting had been going on on the Union right, the left center had been engaged, Geary and Anderson's troops joining in conflict, Hancock being outflanked, and confronted by McLaws and Anderson. Both Geary and Hancock retired safely to the new lines, Stuart's troops being too exhausted by continuous marching and fighting to follow up their advantage.

Hooker had intended that Sedgwick should attack Lee in the rear, and ordered him to advance in this direction, but shortly afterward countermanded the order and directed him to repair to Fredericksburg and take the position there occupied by Gen. J. A. Early, with about 9,000 men. Sedgwick succeeded in dislodging Early, but after doing this, from some unexplained cause, failed to take advantage of his success and crush Early, while his army of less than one-half the strength of the attacking force was divided. He then marched toward the main body of the Federal army, but before he had started the battle of Chancellorsville had been decided, and General Lee, trusting to Hooker's passive policy, at once advanced to meet Sedgwick, and forced him back across the Rappahannock. Having done this, Lee again turned his attention to Hooker, who yet lay inactive at Chancellorsville. On Monday night Hooker held a council of war, and against the advice of all his subordinates, with one exception, decided to retreat. Tuesday evening he began his retreat, and on the morning of May 6th he had regained the north bank of the Rappahannock, the position which he had occupied during the entire winter previous. The losses on both sides were heavy, that of the Union forces amounting to over 17,000, while the Confederates lost about 12,000, besides their great captain "Stonewall" Jackson—a blow from which the cause never recovered. Several cavalry raids were dispatched into the surrounding country by Hooker, but did not succeed in doing any great damage to the Southern cause. In fact, in the eyes of most military critics, the entire campaign was an uninterrupted succession of blunders, disgraces, and defeats.

CHANCERY. See COURTS.

CHÁNDÁ, a district of British India, in the Nágpur division of the Central Provinces, bounded on the N. by the districts of Raipur, Bhandára, and Wardhá, on the E. by Bastár and Raipur, on the S. by Sironchá, and on the W. by the Wardhá and Pranhítá rivers, which divide it from Berar and the Hyderabad territory. The chief manufacture of the district is cot-

ton cloths, both of coarse and fine quality, which are largely exported to Western India. Silkworm breeding is largely carried on, and silk or silk and cotton fabrics are woven. Iron smelting is an important branch of industry.

Chándá is thickly studded with fine tanks, or rather artificial lakes, formed by closing the outlets of small valleys, or by throwing a dam across tracts intersected by streams.

CHÁNDÁ, the principal town in the district of the same name, at the junction of the Virái and Jharpat rivers. The town is surrounded by a wall of cut stone five and a half miles in circuit, and crowned with battlements still in perfect preservation. The town contains a total population of 16,233 souls.

CHANDARNAGAR (popularly *Chundernagore*), a French settlement, with a small adjoining territory, situated on the right bank of the River Huglí, twenty miles above Calcutta. Chandarnagar has played an important part in the European history of Bengal. It became a French settlement toward the close of the seventeenth century, but did not rise to any importance till the time of Dupleix, during whose administration more than two thousand brick houses were erected in the town, and a considerable maritime trade was carried on. In 1757 Chandarnagar was bombarded by an English fleet and captured; the fortifications and houses were afterward demolished. On peace being established, the town was restored to the French in 1763. When hostilities afterward broke out in 1794, it was again taken possession of by the English, and it was held by them till 1816, when it was a second time given up to the French; it has ever since remained in their possession. All the former commercial grandeur of Chandarnagar has now passed away, and at present it is little more than a quiet suburb of Calcutta, without any external trade.

CHANDLER, RICHARD, D.D., a British antiquary, was born in 1738, at Elson in Hampshire, and was educated at Winchester school, and Queen's College, Oxford. His first work consisted of fragments from the minor Greek poets, with notes (1759); and in 1763 he published a fine edition of the Arundelian marbles, *Marmora Oxoniensia*, with a Latin translation, and a number of suggestions for supplying the lacunæ. In 1763 Chandler, together with Revett, the architect, and Pars, a painter, was sent by the *Dilettanti Society* to explore the antiquities of Ionia and Greece. After spending about a year in Asia Minor, the travellers passed another year in Greece, examining Attica and the Peloponnesus, and returned to England in the end of 1766. The result of their joint investigations was the two magnificent folios of Ionian antiquities published in 1769. Chandler died in 1810.

CHANDLER, SAMUEL, D.D., a learned Dissenting minister, was born in 1693 at Hungerford, in Berkshire, England, where his father was an eminent Non-conformist minister. He was sent to school at Gloucester, where he commenced a life-long friendship with Bishop Butler and Archbishop Secker; and he afterward studied at Leyden. His talents and learning were such that he was elected fellow of the Royal and Antiquarian Societies, and was made D.D. of Edinburgh and Aberdeen. He also received offers of high preferment in the Established church. These he decidedly refused, remaining to the end of his life in the position of a Presbyterian minister. He died on May 8, 1766.

CHANG CHOW, a town of China, in the province of Fuh-keen, on a branch of the River Lung Keang, thirty-five miles west of Amoy. It is well-built, and surrounded with a wall four and one-half miles in circumference, which, however, includes a good deal of

open ground. The streets are paved with granite, but are very dirty. The river is crossed by a curious bridge, 800 feet long, constructed of wooden planks supported on twenty-five piles of stones about thirty feet apart. The city is a center of the silk trade, and carries on an extensive commerce in different directions. Brick-works and sugar-factories are among its chief industrial establishments. Its population is estimated at about 1,000,000.

CHANG-CHOW-FOO, a city of China, and capital of a department of the same name, in the province of Fuh-keen, in $24^{\circ} 31'$ N. latitude, and $1^{\circ} 24'$ longitude east of Pekin.

CHANGELING. It was at one time a common superstition that infants were taken from their cradles by fairies, who left instead their own weakly and starveling elves. The children so left were called changelings, and were known by their peevishness, and their backwardness in walking and speaking.

CHANNEL, ENGLISH—the *Mare Britannicum* of the ancients—is that arm of the Atlantic Ocean which divides England from France, gradually narrowing to the Strait of Dover. It is often called the Channel; and the Fleet stationed in it the Channel Fleet. The French call the Channel "La Manche."

CHANNEL ISLANDS, a number of islands politically attached to Great Britain, but connected with France by geographical position, being situated in the great bay of St. Michael, which is bounded by the coasts of the departments of Manche, Ille-et-Vilaine, and Côtes du Nord. They are naturally divided into four principal groups—the northern, which includes Alderney, Burhou, and the Casquets, lying off the Cape de la Hogue; the north-central, comprising Guernsey, Herm, and Sark, about eighteen miles to the south-west; the south-central, or Jersey and its adjacencies, more toward the center of the bay; and the southern, or the Minquiers and Chausseys, with their multitudinous islets. The total area is about seventy-five square miles, or 48,000 acres, and the population is about 100,000.

The *flora* of the islands is remarkably rich considering their extent, nearly 2,000 different species of plants having been counted throughout the group.

The number of the species of the mammalia is little over twenty, and several of these have been introduced by man. There is a special breed of horned cattle, and each island has its own variety, which is carefully kept from all inter-mixture. The animals are small and delicate, and marked by a peculiar yellow color round the eyes and within the ears. The red deer was once indigenous, and the black rat is still common in Alderney and Herm. Nearly 300 species of birds have been found, or more than half the whole British list.

Owing to the Norman system of land-tenure being still in force, the land is parceled out among a great number of small proprietors, and in Alderney, for example, five or eight acres of arable land is accounted a fair estate. The results of this arrangement seem to be favorable in the extreme. Every corner of ground is carefully and intelligently cultivated, and a considerable proportion is allotted to market-gardening. The cottages are neat and comfortable, the hedges well trimmed, and the roads kept in excellent repair. Wealth is for the most part pretty equally distributed, and poverty or pauperism is comparatively unknown.

The language spoken in ordinary life by the inhabitants of the islands is in great measure the same as the Old Norman French, though modern French is used in the law courts, and English is taught in all the parochial schools, and is familiar to a gradually increasing proportion of the population, especially in Jersey and Alderney. The several islands have each its own dialect, differing

from that of the others at once in vocabulary and idiom; and a very marked difference is observable between the pronunciation in the north and south of Guernsey. It has even been asserted that every parish in that island has some recognizable peculiarity of speech; but if this is the case, it is probably only in the same way in which it could be asserted of neighboring parishes throughout the country.

CHANNING, WILLIAM ELLERY, was the son of William Channing and Lucy Ellery, and was born at Newport, R. I., on the 7th of April, 1780.

As a child Channing was remarkable for a refined delicacy of feature and temperament, which made him an object of admiration and affection in the household. From his father he inherited a fine person, simple and elegant tastes, sweetness of temper, and warmth of affection; from his mother (who appears to have been a remarkable woman) he derived the higher benefits of that strong moral discernment and straightforward rectitude of purpose and action which formed so striking a feature of his character. By both parents he was carefully instructed in those strict religious principles which were characteristic of the people of New England; and by both, but especially by his mother, was his moral training most sedulously cared for. Other influences, however, were in the meantime operating upon him. The excitement of the Revolutionary war was inspiring him with a profound and ardent love of freedom. The sick chamber of an aunt of his father, who was a woman of much piety and sweetness, was the source of many serious and hallowed lessons of gentleness and goodness. An amateur Baptist preacher, who was by trade a cooper, by refusing, though very poor, to manufacture any of the articles of his trade used for containing ardent spirits, gave him an impulse which he never lost.

In his twelfth year he was sent to his uncle, his father dying soon after. This event, however, though it produced a great change in the circumstances of the family, was not allowed to interrupt the course of his studies. After the funeral he returned to the house of his uncle, where he remained till he had reached his fifteenth year, when he was removed to Cambridge, Mass., and entered at Harvard College as freshman in 1794. Before leaving New London he came under the influence of a religious revival which took place there, a circumstance to which he was accustomed to trace the commencement of a decidedly religious life.

The four years he remained at college seem to have been most profitably spent. Besides acquiring an extensive acquaintance with classical and general literature, he read largely and thought earnestly in the department of psychology and ethics. To the study of Shakespeare also (the interest in whose works was then newly awakened in that quarter) he owed much; and so deep was the impression made on him by the genius of the poet, that to the close of his life one of the greatest of intellectual treats was furnished by recitations from his writings. By patient and well-directed assiduity he trained himself to the mastery of that copious and vigorous style of composition to which his subsequent position in the world of letters is in no small measure due, and at the same time also laid the basis of his success as a public speaker, by the formal study of rhetoric, and by frequent practice in addressing assemblies.

For a year and a half after leaving college in 1798, Channing was resident at Richmond, in Virginia, as tutor in the family of Mr. David Meade Randolph. Here he had time for study, which he employed chiefly on theological subjects. In regard to many points, touching both the evidences of Christianity and its doctrines, his mind was burdened with doubt and anxiety; and so earnestly did he labor to attain satisfaction, that

his constitution sank under the incessant toil. When, in 1800, he returned to Newport, his friends were shocked to find him changed to "a thin and pallid invalid;" and unhappily, at this time were sown the seeds of that depressed condition of health which continued through life his severest trial. He remained in the bosom of his family for another year and a half, engaged in the pursuit of his studies, and in preparing himself, by physical and moral as well as intellectual training, for the work to which he was looking forward—that of the ministry. In 1802 he returned to Cambridge, having been elected to the office of regent in Harvard University, a situation which, without exacting from him any large amount of service, secured to him the advantage of independence, and an opportunity of prosecuting his studies within reach of a valuable library, and under influences favorable to success. In the autumn of 1802 he began to preach, having received approbation to do so from the Cambridge Association; and in the beginning of the following year he accepted the invitation of the Congregational Church, Federal Street, Boston, to be their pastor. To this office he was ordained in June, 1803.

Channing entered on his ministry with a deep and almost painful sense of the responsibility of the office he had assumed, and with an earnest desire to acquit himself faithfully of its obligations. His theological views were at this time probably not definitely fixed. We have his own assurance that he was not a Trinitarian, but he had not at this time severed himself from those holding orthodox views. In 1808 he took part in the ordination of the Rev. J. Codman, a well-known minister of the Congregational order, when he delivered a sermon which was afterwards published. In this sermon, though the language and sentiments are such as any evangelical divine might use, there is nothing that certainly indicates that the author held any of the views peculiarly distinctive of evangelical orthodoxy unless it be the application of the title "Divine Master" to Jesus Christ, and the use of such expressions as that the blood of Christ was "shed for souls," and that for man's salvation "the Son of God himself left the abodes of glory and expired a victim on the cross." It is not thus that Unitarians, in England at least, are wont to speak of Christ and his death. But Channing never identified himself with any theological party. He called himself a Unitarian, and so in a sense he was, but his views were Arian rather than what are commonly known as Unitarian. He revered in Jesus Christ not only a sublimely perfect character, but a nature higher than that of man. He believed in His pre-existence in heaven, and that He came down from heaven for man's salvation; and he taught that "the Scriptures ascribe the remission of sins to Christ's death with an emphasis so peculiar that we ought to consider this event as having a special influence in removing punishment, as a condition or method of pardon, without which repentance would not avail us, at least to that extent which is now promised by the gospel." The truth is, that Channing was too much a lover of free thought, and too desirous to hold only what he saw to be true, to allow himself to be bound by any party ties. "I wish," he says, "to regard myself as belonging not to a sect but to the community of free minds, of lovers of truth, and followers of Christ, both on earth and in heaven. I desire to escape the narrow walls of a particular church, and to stand under the open sky in the broad light, looking far and wide, seeing with my own eyes, hearing with my own ears, and following Truth meekly but resolutely, however arduous or solitary be the path in which she leads." Thus refusing to be enclosed within the limits of party, and acting freely as

respected religious association, he may be claimed as one whom men of all parties honor for his abilities, his integrity, and his work.

In 1814 Channing married his cousin, Ruth Gibbs, a union which brought him an increase of worldly substance, as well as a rich addition to his personal happiness. "Inwardly and outwardly," his biographer tells us, "his lot henceforward was singularly serene." He was now fast rising in reputation, both as a preacher and as a public man. Interested in all that concerned his country and the cause of humanity, his voice was heard on most of the questions that came before the American public, and always with marked and growing effect. He had begun also to command attention as a writer for the press. His *Address on War*, some of his sermons, and especially his able tract on *Evidences on Christianity*, had given him a position of eminence among the writers of his country. In 1821 he received the title of D.D. from Harvard University. In 1822 he undertook a journey to Europe, in the course of which he visited Great Britain and some parts of the Continent. When in England he made the acquaintance of some distinguished men of letters, especially Wordsworth, and Coleridge, on both of whom he appears to have left a most favorable impression. Coleridge wrote of him, "He has the love of wisdom and the wisdom of love." On his return Dr. Channing resumed his duties as a minister, but with a more decided attention than before to literature and public affairs. In 1824 he received as colleague the Rev. Ezra Stiles Gannett, at whose ordination he preached one of his published discourses. From this time forward his energies were devoted, in addition to his pulpit labors, chiefly to the furtherance of great schemes of social reform. Of the anti-slavery cause he was throughout the firm, eloquent, and uncompromising advocate; and in every question that bore upon the happiness of the people he took a lively interest. He died in the sixty-third year of his age, on Sunday, the 2d of October, 1842, whilst on a journey, at Bennington, Vermont, and was buried at Boston, on the 7th of that month.

CHANTIBAN, a large town of Siam, the capital of a province of the same name, on the south bank of a small river near its mouth in the Gulf of Siam, 150 miles S.E. of Bangkok. It is the seat of one of the Siamese arsenals, and has a considerable export trade in pepper, cardamoms, rosewood, dye-woods, ship-timber, hides, horns, and ivory. In the vicinity there are mines of precious stones. The population, which is estimated at 30,000, contains a large proportion of Chinese traders.

CHANTILLY, a small town of France, in the department of Oise, 25 miles north of Paris by the main line of the great northern railway. It is finely situated near the river Nonette, and is one of the favorite Parisian resorts. Its name has long been associated with the manufacture of lace and blonde, and it is still more celebrated for its chateaux and pleasure grounds, and as the scene of the great annual races of the French Jockey Club.

CHANTILLY, a post-hamlet of Fairfax county, Va., about twenty miles west of Washington, D. C. It is famous on account of a battle between the Confederates, under Gen. R. S. Ewell, and the Federals, under General Pope, fought on September 1, 1862, when Gen. Philip Kearney was killed. The village is very small.

CHANTREY, SIR FRANCIS, a sculptor of repute, was born on 7th April, 1782, at Norton, near Sheffield, where his father cultivated a small property of his own. His father died when he was eight years of age; and, his mother having married again, his profession was left to be chosen by his friends. In his sixteenth year he was on the point of being apprenticed to a lawyer in

Sheffield, when, having seen some wood-carving in a shop-window, he requested to be made a carver instead of a solicitor, and was accordingly placed with a Mr. Ramsay, wood-carver in Sheffield. When in this situation, he became acquainted with Mr. Raphael Smith, a distinguished draftsman in crayon, who gave him lessons in painting; and Chantrey, eager to commence his course as an artist, procured the cancelling of his indentures, and went to try his fortune in Dublin and Edinburgh, and finally in London. Here he first obtained employment as an assistant wood-carver, but at the same time devoted himself to portrait-painting, bust-sculpture, and modelling in clay. The sculptor Nollekens showed particular zeal in recognizing his merits.

His first imaginative work was the model of the head of Satan, which was exhibited at the Royal Academy in 1808. He afterwards executed for Greenwich Hospital four colossal busts of the admirals Duncan, Howe, Vincent, and Nelson; and so rapidly did his reputation spread that the next bust which he executed, that of Horne Tooke, procured him commissions to the extent of £12,000. From this period he was almost uninterruptedly engaged in professional labor. In 1819 he visited Italy, and became acquainted with the most distinguished sculptors of Florence and Rome. He was chosen an associate, and afterwards a member, of the Royal Academy, received the degree of M.A. from Cambridge, and that of D.C.L. from Oxford, and in 1837 was knighted. He died after an illness of only two hours' duration, on the 25th November, 1841, having for some years suffered from disease of the heart, and was buried in a tomb constructed by himself in the church of his native village. The works of Chantrey are extremely numerous. The principal are the statues of Washington in the State-house of Boston, of George III. in London, of George IV. at Brighton, of Pitt in Hanover Square, London, of Watt in Westminster Abbey and at Glasgow, of Roscoe and Canning at Liverpool, of Dalton at Manchester, of Lord-President Blair and Lord Melville in Edinburgh, &c. Of his equestrian statues the most famous are those of Sir Thomas Munro at Calcutta, and the Duke of Wellington in front of the London Exchange. But the finest of Chantrey's works are his busts, and his delineations of children.

CHAOS signified, in the ancient cosmogonies, that vacant, infinite space out of which sprang all things that exist. Some poets make it the single original source of all; others mention with it Gæa, Tartaros, and Eros. Later cosmogonists, such as Ovid, represent it as that confused, shapeless mass out of which the universe was formed into a *kosmos*, or harmonious order.

CHAPALA, the largest lake in Mexico, containing about 1,300 square miles, is in about latitude 20° 20' north, and ranges in west longitude from 102° to 103° 25'. It is an expansion of the Rio Grande de Lerna, which enters the Pacific at San Blax.

CHAP BOOKS, a variety of old and scarce tracts of a homely kind, which at one time formed the only popular literature, and are reputed to have been sold by chapmen or pedlers; hence their designation.

CHAPEL (Fr. *chapelle*), a word derived from *capa*, which originally signified a case or chest in which were contained the relics of a saint, and afterward the place where the chest was kept. The term now signifies a building erected for the purposes of public worship, but not possessing the full privileges and characteristics of a church.

CHAPELAIN, JEAN, a French poet and man of letters, was the son of a notary, and was born in Paris in 1595. As a poet, Chapelain seems to occupy on the French side of Parnassus a place analogous

to that one filled on the English side by Sir Richard Blackmore. *La Pucelle* is an enormous allegorical nightmare, toward a correct appreciation of which the satire of Boileau is said to be the best guide. As a prose-writer and critic, Chapelain seems to have had real merit; in a passage of his, concerning the legendary epic of the Middle Ages, quoted by Sainte-Beuve (who calls him "homme instruit, sinon poète"), he would appear to have anticipated much of what modern criticism has had to say on the subject. He died in 1674.

CHAPEL-HILL, a village of the United States, in Orange County, North Carolina, 27 miles north-west of Raleigh. It is the seat of the North Carolina university, founded in 1789, and has about 2800 permanent inhabitants.

CHAPERON, a hood or cap worn by Knights of the Garter. Such a hood was at one time in general use, but was latterly appropriated to doctors and licentiates in colleges. A person acting as a guide and protector to a lady at public places is called a chaperon, probably from this particular piece of dress having been used on such occasions. The name was also applied to devices which were placed on the heads of horses at pompous funerals.

CHAPLAIN was originally the title of the ecclesiastic who accompanied an army and carried the relics of the patron saint. It has now come to signify a clergyman not having charge of a parish, but employed to officiate at court, in the household of a nobleman, or in any army-garrison, ship, etc. Generally a chaplain is attached to each regiment and ship of war in the United States, and one to each penitentiary and industrial school. Each branch of the Federal and State Legislatures has a chaplain, who opens the proceedings of each day with prayer.

CHAPMAN, GEORGE, translator of Homer, dramatist, and gnomic poet, was born in 1559, and died in 1634. At fifteen, according to Anthony Wood, "he being well grounded in school learning, was sent to the university" of Oxford; at thirty-five he published his first poem, *The Shadow of Night*. Between these dates, though no fact has been unearthed concerning his career, it is not improbable that he may have travelled in Germany. At thirty-nine he was reckoned "among the best of our tragic writers for the stage;" but his only play published at that age was a crude and formless attempt at romantic comedy, which had been acted three years before it passed from the stage to the press; and his first tragedy now extant in print, without name or author, did not elicit the suffrage of a reader till the poet was forty-eight. At thirty-nine he had also published the first instalment of his celebrated translation of the *Iliad*, in a form afterwards much remodelled; at sixty-five he crowned the lofty structure of his labor by the issue of an English version of the *Hymns* and other minor Homeric poems. The former he dedicated to Robert Devereux, Earl of Essex, the hapless favorite of Elizabeth; the latter to Robert Carr, Earl of Somerset, the infamous minion of James. Six years earlier he had inscribed to Bacon, then Lord Chancellor, a translation of Hesiod's *Works and Days*. His only other versions of classic poems are from the fifth satire of Juvenal and the *Hero and Leander*, which goes under the name of Musæus, the latter dedicated to Inigo Jones. His revised and completed version of the *Iliad* had been inscribed in a noble and memorable poem of dedication to Henry Prince of Wales, after whose death he and his *Odyssey* fell under the patronage of Carr.

CHAPPE, CLAUDE, a French engineer, and the inventor of the simple French telegraph, was born in Normandy in 1763. His invention consisted of an upright

post, on the top of which was fastened a transverse bar, while at the ends of the latter were two smaller arms moved on pivots. The positions of these four bars represented words or letters; and by means of machines placed at intervals such that each was distinctly visible from the next, messages could be conveyed through 50 leagues in a quarter of an hour. It was said that Chappe borrowed the design from Hooke and Amontons, and the charge so deeply affected him that, notwithstanding the success of his machine, which had been adopted by the Legislative Assembly in 1792, he was seized with deep melancholia, under which he committed suicide in 1805.

CHAPPED HANDS, a form of disease of the skin, produced by undue exposure to extremes of cold and heat, and affecting chiefly the joints, the skin over which swells and cracks, with itching, pain and heat. To cure, use tepid water in washing, and pure castile soap; cover the hands with glycerine, collodion or sweet oil, in which a little sulphate of zinc (2 gr. to an ounce of mixture) has been incorporated. Wear gloves out of doors and in bed.

CHAPTAL, JEAN ANTOINE, count of Chanteloup, an eminent French chemist and statesman, born at Nogaret, Lozère, June 4, 1756. At Montpellier, where he first studied chemistry, he obtained his doctor's diploma in 1777, when he repaired to Paris. In 1781 the States of Languedoc founded a chair of chemistry for him at the school of medicine in Montpellier, where he taught with success the doctrines of Lavoisier, in opposition to those of Stahl. After the revolution of the 13th of Brumaire (November 9, 1799) he was made a councilor of state by the first consul, and succeeded Lucien Bonaparte as minister of the interior, in which capacity he established a chemical manufactory near Paris, a school of arts, and a society of industries; he also reorganized the hospitals, introduced the metrical system of weights and measures, and otherwise greatly encouraged the arts and sciences. A misunderstanding between him and Napoleon occasioned Chaptal's retirement from office in 1804; but before the end of that year he was again received into favor by the emperor, who bestowed on him the grand cross of the legion of honor, and made him treasurer to the conservative senate. On Napoleon's return from Elba, Chaptal was made director-general of commerce and manufactures, and a minister of state. He was obliged after the downfall of the emperor to withdraw into private life; and his name was for a time removed from the list of the peers of France. In 1816, however, he was nominated a member of the Academy of Sciences by Louis XVIII. Notwithstanding the many vicissitudes of fortune which he underwent, Chaptal continued to promote the interests of science until his death, which took place at Paris, July 30, 1832.

CHAPTER, the community of clergymen connected with a cathedral or collegiate church. See CATHEDRAL.

CHAPULTEPEC, a fortress about two miles from the City of Mexico, which was besieged and stormed by General Scott in September, 1847.

CHAPU, an important maritime town of China, in the province of Che-keang, fifty miles northwest of Changhai, situated in one of the richest and best cultivated districts in the country. It is the port of Hangchow, with which it has good canal communication, and it was formerly the only Chinese port trading with Japan. The town has a circuit of about five miles, exclusive of the suburbs that lie along the beach; and the Tartar quarter is separated from the rest by a wall. It was attacked and much injured by the British force in 1842, but was abandoned immediately after the engagement.

CHARADE, a trifling species of composition, or quasi-literary form of amusement, which may perhaps be best defined as a punning enigma propounded in a series of descriptions. A word is taken of two or more syllables, each forming a distinct word; each of these is described in verse or prose, as aptly and enigmatically as possible; and the same process is applied to the whole word. The neater and briefer the descriptive parts of the problem, the better the charade will be. In selecting words for charades, special attention should be paid to the absolute quality of the syllables composing them, inaccuracy in trifles of this sort depriving them of what little claim to merit they may possess. The brilliant rhythmic trifles of W. Mackworth Praed are well known. Of representative prose charades, the following specimens are perhaps as good as could be selected:—"My *first*, with the most rooted antipathy to a Frenchman, prides himself, whenever they meet, upon sticking close to his jacket; my *second* has many virtues, nor is its least that it gives its name to my first; my *whole* may I never catch!" "My *first* is company; my *second* slurs company; my *third* collects company; and my *whole* amuses company." The solutions are *Tar-tar* and *Co-nun-drum*. "Acting charades" are simply punning enigmas described dramatically. A brilliant description of this variety of the species will be found in Thackeray's *Vanity Fair*.

CHARCAS. See SUCRE.

CHARCOAL, the more or less impure form of carbon obtained from various vegetable and animal materials by their ignition out of contact with air. Wood charcoal is a hard and brittle black substance, that retains the form and external structure of the wood from which it is made. It rings when struck, and has a conchoidal fracture; it is infusible, and is not dissolved by water or acids; at ordinary temperature it is a bad conductor of heat and electricity.

Fresh-burnt charcoal rapidly absorbs from 9.6 to 18 per cent. of its weight of atmospheric moisture, of which the commercial article usually contains about 12 per cent. It has also a remarkable absorptive action on gases, condensing them within its pores. To the heat thus developed has been attributed the occasional spontaneous ignition of charcoal that has been stacked too soon after manufacture.

Charcoal can be made at a temperature as low as 300° C. It is produced in greatest quantity at a heat just sufficient thoroughly to char the wood. The charcoal so made contains a larger percentage of hydrogen, oxygen, and nitrogen than that formed at higher temperatures, and, being readily inflammable, is adapted for the manufacture of gunpowder. The quantity of charcoal obtainable from wood varies according to the nature of the wood employed and the method of manufacture.

Charcoal can be prepared in a variety of ways. In its purest form it is obtained by the ignition of organic substances such as starch and sugar. That made for powder-mills, as also that produced in acetic acid factories, is the product of the distillation of wood in iron cylinders. In China charcoal is prepared in pits, preferably in a clayey soil. In some parts of Sweden it is made from rectangular piles of wood, the process being regulated by the careful admission of air through holes in the covering of the wood. In Foucauld's process, a portable shroud or *abri* of wood coated with a mixture of loam and grass is used to cover the heap to be charred. In most countries where wood is abundant, charcoal-burning is carried on by firing conical piles of billets of wood, about 12 feet in height, and 10 to 40 feet in diameter, from the top of a central hole or chimney. The wood is felled in winter, and must be tolerably dry; it is built up with the bark outermost, the

largest billets being placed in the interior of the pile; over the whole is laid a covering of turf, or of charcoal-dust ("breeze") and soil. The combustion of the wood is conducted from above downward, and from the exterior toward the centre; so that the charcoal in a half-burnt heap forms an inverted cone. At the sides of the heap are holes for the admission of air, the number and size of which are a matter of importance. The first or "sweating" process lasts three or four days, during which the cover becomes moist with condensed water. The openings round about the base of the pile are then covered, and a series of holes is made about half-way from the top of the heap; as the smoke ceases to issue from these they are closed, and other series of holes are made below, as required. The tarry products which collect towards the close of the operation are removed from the heap by means of gutters or pipes.

Sometimes the base of the heap is made in the shape of a flat funnel, from which proceeds a channel for the tar and acid. When the air-holes of the burning heap no longer emit smoke and flame, they are carefully stopped, and the pile is allowed to cool for two or three days. The charcoal is then drawn, and any pieces which may still be glowing are quenched by plunging them into water or sand. By the above-described method, 128 cubic feet (one cord) of wood yield about 30 bushels of charcoal.

Besides being employed as a fuel, and as a reducing agent in metallurgy, wood-charcoal is applied to a variety of purposes. It is much used in the manufacture of filters, and as a medicine it may be administered in some cases of dyspepsia. On account of the resistance of charcoal to the action of water, stakes for wet soils and the insides of casks are charred previous to use. Charcoal is valuable as an absorbent of noxious effluvia, which it decomposes by bringing them into contact with condensed oxygen within its pores. Its absorbent power is greater than that of spongy platinum, but its efficacy as a promoter of chemical union is not so great.

Coal-Gas Charcoal, or Gas-Carbon, is a dense and pure variety of charcoal, of a greyish black color, which is deposited in the inside of gas-retorts. It is used for making the negative poles of Bunsen's batteries.

Lamp black is a finely-divided form of charcoal, obtained by condensing the smoke of burning resinous and oily substances in cylindrical chambers, hung with sack-ing or sheep-skins. The crude lamp black is purified by heating to redness in closed vessels.

Peat Charcoal is produced by the carbonization of peat in kilns or circular shafts of brick and stone-work. The ignition is made to proceed from above downwards.

Animal Charcoal, or Bone-Black, is prepared by igniting fresh and coarsely comminuted bones, which have been previously boiled to remove fat, in closed vessels of iron or earthenware. The bone-black so produced, which weighs about half as much as the bones employed, is hermetically sealed, as soon as made, in iron canisters. Animal charcoal contains of carbon about 14 per cent. in a state of fine division, of calcic phosphate 80 per cent. of calcic carbonate 5 per cent., with nitrogen and minor impurities. It is largely employed as a decolorizing, deodorizing, and filtering agent. It removes many organic substances from their solutions; thus it has been found that whilst the color of ale can be made paler by its means, the bitterness is at the same time wholly removed. This action of animal charcoal is due to the separation of the particles of carbon by the earthy matter present in it. The precipitant action of bone-black on matters in solution is much greater than that of wood-charcoal. Its decolorizing properties are found to be greatly enhanced by washing with hydrochloric

acid and subsequent calcination with potash. A good decolorizing charcoal is made by igniting nitrogenous animal matter, such as horn and clippings of hides, in contact with pearl-ash, and washing the product with water. Animal charcoal can be re-purified after use by treating it with acids; or by putrefying and dissolving out organic impurities, washing, and finally igniting it. Animal charcoal is used as a pigment, more especially in the form of *ivory black*, and also as a manure for vegetable soils; and it has been recommended by Drs. Eulenberg and Wohl as an antidote in cases of phosphorous poisoning.

CHARD, a municipal borough and market-town of England, in Somersetshire, with a railway junction, 18 miles south of Bridgewater, and 139 miles from London.

CHARDIN, SIR JOHN, a celebrated traveller, was born at Paris in 1643. His father, a wealthy jeweller, gave him an excellent education and trained him in his own art; but instead of settling down in the ordinary routine of the craft, he set out in company with a Lyons merchant named Raisin in 1665 for Persia and India, partly on business and partly to gratify his own inclination. After a highly successful journey, during which he had received the patronage of Shah Abbas II. of Persia, he returned to France in 1670, and there published in the following year *Récit du Couronnement du Roi de Perse Soliman III.* Finding, however, that his Protestant profession cut him off from all hope of honors or advancement in his native country, he set out again for Persia in August, 1671. This second journey was much more adventurous than the first, as instead of going directly to his destination, he passed by Smyrna, Constantinople, the Crimea, Caucasia, Mingrelia, and Georgia, and did not reach Ispahan till June 1673. After four years spent in researches throughout Persia, he again visited India, and returned to Europe by the Cape of Good Hope in 1677. The persecution going on in France led him, in 1681, to settle in London, where he was appointed jeweller to the Court, and received from Charles II. the honor of knighthood. In 1683 he was sent to Holland as representative of the English East India Company; and in 1686 he published the first part of his great narrative — *The Travels of Sir John Chardin into Persia and the East Indies, &c.* (London). It was not till 1711, however, that the complete account of his travels appeared, under the title of *Journal du Voyage du Chevalier Chardin*, at Amsterdam. Sir John died at London in 1713, and was buried in Westminster Abbey, where his monument bears the inscription *Nomen sibi fecit eundo*.

CHARENTE, an inland department of the south-west of France, comprehending the ancient division of Angoumois, and inconsiderable portions of Saintonge, Poitou, and Limousin. It is bounded N. by the departments of Deux-Sèvres and Haute-Vienne, E. by those of Vienne and Dordogne, and S. and W. by Dordogne and Charente-Inférieure. The greater part of its area of 2295 square miles consists of the valley of the River Charente, which rises in Haute-Vienne, and after a circuitous course passes into the department of Charente-Inférieure, where it falls into the sea opposite Isle-Madame, having received in its progress the waters of the Tardoire, Tournes, Né, Antoine, and Boutonne. The Charente, though rapid, has been artificially rendered navigable, and steamers ply between Angoulême and Saintes, although the tide ascends no higher than the latter town. The principal productions are wine, corn, hemp, flax, and potatoes, the wine being largely distilled into brandy, for which the town of Cognac is famous. Angoulême is the chief town.

CHARENTE-INFÉRIEURE, or LOWER CHARENTE, a maritime department of France, comprehend-

ing the old provinces of Saintonge and Annis, and including the islands of Ré, Oléron, Aix, and Madame. It has an area of 2636 square miles, and is bounded N. by Vendée and Deux-Sèvres, E. by Charente, S. by Gironde, and W. by the Bay of Biscay. The productions very nearly coincide with those of Charente, with this difference — that its wines and brandy are greatly inferior, but its fruits and vegetables greatly superior to those of the upper province. La Rochelle is the chief town of the department.

CHARENTON-LE-PONT, a town of France in the department of Seine, situated on the right bank of the Maine, near its confluence with the Seine, a short distance south-east of Paris, of which it may almost be regarded as a suburb. It derives the distinctive part of its name from the stone bridge of ten arches which crosses the Marne and unites the town with the village of Alfort, famous for its veterinary school. It has always been regarded as a point of great importance for the defence of the capital, and has frequently been the scene of sanguinary conflicts. Of its fortifications the most important is the Fort de Charenton, which lies on the left bank of the river near Alfort. In the 16th and 17th centuries Charenton was the scene of the ecclesiastical councils of the Protestant party, which had its principal church in the town. At present its most remarkable institution is the lunatic asylum, or Maison de Santé, which was originally founded by Le Blanc in 1664 as a general hospital, and only received its present appropriation by a decree of the tenth year of the Republic. In 1814 the bridge was gallantly defended by the pupils of the veterinary school against the Austrians and Würtembergers. Population, 7141.

CHARGE, in Heraldry. The figures represented on a shield are called charges, and a shield with figures upon it is said to be charged (Fr. *charge*).

CHARGE, in Military Warfare, is a sudden and impetuous attack on the enemy, by horse or foot, or both. Its object usually is to drive the enemy from a particular position; but, if made with a much stronger force, it may result in his actual destruction.

CHARGE, in Military Pyrotechny, is sufficient combustible material for one firing or discharge. It is applicable to all kinds of firings, fireworks, and explosions, but the name is generally given to the quantity of gun-powder requisite for firing off a gun, etc.

CHARGER, a name sometimes given to a war-horse. An instrument used for measuring charges of powder for muzzle-loading fire-arms is also called a charger.

CHARGES D'AFFAIRES are diplomatic agents, empowered by an ambassador to act in his absence.

CHARIOT, in antiquity, was a conveyance used in battle, for the chase, in public processions, and in games. It had two wheels, and was made to be drawn by two horses; if a third or, more commonly, two reserve horses were added, they were attached on each side of the main pair by a single trace fastened to the front of the chariot, as may be seen on two prize vases in the British Museum from the Panathenaic games at Athens, on which *quadrigæ* are represented. On the monuments there is no other sign of traces, from the want of which wheeling round must have been difficult. Immediately on the axle, without springs of any kind, rested the basket or body of the chariot, which consisted of a floor to stand on, and a semicircular guard round the front about half the height of the driver. It was entirely open at the back, so that the combatant might readily leap to the ground and up again as was necessary. There was no seat, and generally only room for the combatant and his charioteer to stand in. The pole was probably attached to the middle of the axle, though it appears to spring from the front of the basket; at the

end of the pole was the yoke, which consisted of two small saddles fitting the necks of the horses, and fastened by broad bands round the chest. Besides this the harness of each horse consisted of a bridle and a pair of reins, much the same as in use now, made of leather and ornamented with studs of ivory or metal. The reins were passed through rings attached to the collar-bands or yoke, and were long enough to be tied round the waist of the charioteer in case of his having to defend himself. The wheels and body of the chariot were usually of wood, strengthened in places with bronze or iron; the wheels had from four to eight spokes and tires of bronze or iron.

This description applies generally to the chariots of all the nations of antiquity; the differences consisted chiefly in the mountings. The chariots of the Egyptians and Assyrians, with whom the bow was the principal arm of attack, were richly mounted with quivers full of arrows, while those of the Greeks, whose characteristic weapon was the spear, were plain except as regards mere decorations. Among the Persians, again, and more remarkably among the ancient Britons, there was a class of chariot having the wheels mounted with sharp sickle-shaped blades, which cut to pieces whatever came in their way. This was probably an invention of the Persians; Cyrus the younger employed these chariots in large numbers. Among the Greeks and Romans, on the other hand, the chariot had passed out of use in war before historical times, and was retained only for races in the public games, or for processions, without undergoing any alteration apparently, its form continuing to correspond with the descriptions of Homer, though it was lighter in build, having to carry only the charioteer.

CHARITON, of Aphrodisias in Caira, probably one of the last of the Greek erotic writers, lived about the 5th century A.D., and was the author of a romance entitled *The Loves of Chæreas and Callirrhoe*. It has been translated into German and French.

CHARLEMAGNE, or **CHARLES THE GREAT**, was born in 742, succeeded his father Pepin as king of the Franks in 768, was crowned emperor of the Romans in 800, and died in 814 after an eventful and beneficent reign of forty-six years. His father had divided the Frankish kingdom between him and his younger brother Carloman, but the latter dying in 771, Charlemagne was proclaimed sole ruler. The monarchy he thus inherited was a very extensive one; for, in addition to the Frankish territory, stretching from the Loire to the east of the Rhine, there were Burgundy and Allemannia, which had been incorporated by his ancestors, while almost all round the direct empire of the Franks stretched a group of vassal nations. Aquitaine, Brittany, Frisia, Thuringia, and Bavaria were in more or less close subjection to them. They were, moreover, the protectors of the popes against the Greeks and Lombards, and the champions of Christianity against the Saracens on the south-west and the heathen Saxons on the north-east. In fact, before the accession of Charlemagne the Franks had attained to a real supremacy over most of the Germanic nations, and were the bulwark of the Christianity of the West. This many-sided and lofty position imposed a corresponding complexity of duty on the new king, which he fulfilled with an energy and success almost unexampled in the history of the world, maintaining and extending on all hands the influence of Christian culture, and taking the first steps towards converting the military monarchy of the Franks into an organized polity. His first task was to suppress a rising in Aquitaine. In 772 commenced the great mission of his life, the conquest and conversion of the Saxons, a work which could be effected only after thirty-two

years of the fiercest and most passionate warfare. With the doubtful exception of the Frisians, the Saxons were the last remnant of the old Germanic resistance to the military supremacy of the Franks, and the last Germanic champions of the religion of Odin against the onward progress of Christianity.

Charlemagne never had much difficulty in vanquishing the badly-organized Saxon forces, and in compelling a temporary or partial submission; but with a loose confederation like the Saxons, which had no definite organization and no properly recognized representative, it was difficult to make a fixed and universally accepted arrangement. Hence the incessant renewal of an apparently decided conflict, and the outcry of the Franks against the treachery of their enemies. The encroachment of the Saxons on his eastern frontier was the occasion of his first expedition, which was directed into the ancient forest of Teutoberg, famous as the scene of the old Germanic resistance to the Romans. Here he stormed the fortress of Ehresburg, overthrew the Irminsul, a mysterious column-shaped idol much revered among the Saxons, destroyed the sanctuary of Odin, and compelled the Westphalian Saxons to submit. Events in Italy now summoned Charlemagne to the other side of the Alps, in order to chastise the Lombards who were invading the possessions of the Pope. The Frankish king was victorious, dethroned Desiderius the Lombard king, and placed the Lombard crown on his own head (774). Meanwhile, the Saxons had profited by his absence to expel the Frankish garrisons, and even to renew their old ravages. Charlemagne immediately set out against them, and in two campaigns enforced the submission of the entire Saxon confederation. In a great Champ-de-Mai at Paderborn the Frankish king, surrounded by his chiefs and by ambassadors from distant nations, received the homage of the Saxon warriors, many thousands of whom submitted to be baptized (777). The Saxons apparently subdued, Charles crossed the Pyrenees, and received the submission of the country as far as the Ebro. On his return, however, the rear-guard was assailed and cut off by the mountaineers in the pass of Roncesvalles; Roland their leader was slain, and the overthrow of the Franks, transformed and wrought up in every possible way, became one of the great themes of song and romance (778). His march home from Spain had been unseasonably hastened by a general revolt of the Saxons, this time assisted by the Danes. Charles was again easily victorious, but no sooner had he left the country than the Saxons, mad with revenge, and animated by the fiercest national and religious hate, resumed the struggle. Even the massacre of Verden (782), in which 4500 Saxon prisoners were slain in cold blood, served only to intensify the spirit of resistance; but their rude courage was no match for the large and well-disciplined armies of the Frankish king. They were again completely defeated; even Wittikind, the hero of the whole war, was compelled to confess the superiority of the God of Charlemagne, and at Attigny received the rite of baptism (785). His example was generally followed; and the Frankish organization, political and ecclesiastical, was systematically introduced. Germany had become Christian; it was now the Northmen, among whom thousands of Saxons had found refuge, that took up the task of supporting a gradually declining cause. But though this may be looked upon as the deciding act in the drama of old Germanic resistance, there were still many bloody and almost general revolts of the Saxons. To punish these Charles adopted even a more effective method than the planting of Frankish garrisons; thousands of Saxon families were deported into other provinces of the empire, and more loyal subjects introduced

to fill the vacant space. It was not till 804 that the last sparks of resistance were quenched.

In the year 788, Bavaria was incorporated with the Frankish empire. Its duke, Thassilo, had more than once incurred the displeasure of Charles by too pronounced measures towards the recovery of his independence, and had even alienated his subjects by schemes of alliance with the heathen Avars and the heretic Greeks. Consequently Charles had no difficulty in dethroning him. This was followed in 791 by a vast and well-organized expedition against the Avars, a savage robber nation of Mongols inhabiting the modern Hungary. The Franks were again victorious everywhere; but the other work of a more pressing kind prevented Charles from completing their reduction, which was afterwards effected chiefly by his lieutenants. Their immense circular encampments, or rings, from which they had issued to carry havoc into all the surrounding countries, were forced, and their treasures became the spoil of the Christian armies (798). They submitted; and German colonists were introduced into many of those regions. In this way Pannonia was added to the empire of Charles. Other campaigns carried on at various times by Charlemagne or his lieutenants, on the Elbe and even in Bohemia, against the Danes, the Wends, and the Czechs, still further increased the prestige of the Frankish armies, and enlarged the empire of their great monarch against Slavish and Scandinavian heathendom, while his troops maintained the Spanish march against his south-western enemies, Moslem and Christian, and the duke of Beneventum in Southern Italy was obliged to become his vassal. Thus from the Eider to Sicily, and from the Ebro to the Theiss, the will of Charles was supreme; while over the Slavonic tribes, as far as the Oder or even the Vistula, his influence was felt in no feeble way. The genius and energy of one man had succeeded in arresting the progress of political disintegration, and, in the interest of culture and constructive order, in welding into one great monarchy all the races of continental Germany. It is no wonder that men who associated the ideas of imperial order and constructive civilization with the name of Rome should have recognized in the monarchy of Charles the restoration of the power of the Cæsars. When, therefore, at Rome, on Christmas eve of the year 800, he was crowned emperor of the Romans, it seemed the natural consummation of his whole career. And when in 801 an embassy arrived with curious presents from Harun-al-Rashid, the great caliph who held in the East the same place as Charles in the West, men recognized it as a becoming testimony to the world-wide reputation of the Frankish emperor.

Charles was far more than an ordinary conqueror. He displayed not less energy in the internal organization and administration of his kingdom than in foreign affairs. The whole empire was divided into districts, presided over by counts, who were responsible for their good government; while in the exposed frontiers or marches, other counts (*Markgrafen*) were stationed with forces capable of defending them. In order to superintend these provincial authorities, to give effect to the royal will, to preserve the due subordination of the outlying portions of the empire to the central power, and in this way to complete and secure the organization of the empire, the *missi dominici*, experienced men both of the laity and clergy, were despatched in all directions. Two great assemblies were held every year, — the Champ-de-Mai, which was a kind of a national muster, essentially military, and another in autumn, of the high officials, of a deliberative and advisory nature. In the capitularies (edicts issued as the necessities of the empire required), in his endeavors to promote educa-

tion, in his organization of the church and the definitive institution of tithes, in the unsuccessful attempt to join the Danube and the Rhine by a canal, he gave proof of the noblest desire to conserve and propagate the culture of former times. Learned men — Eginhard, Paul Warnefried, and, above all, Alcuin — were his intimate friends and teachers; Guizot calls Alcuin his intellectual prime minister.

Charlemagne died on 28th January, 814, at Aix-la-Chapelle, and was buried there. The empire created and organized by his genius gradually fell to pieces after his death. His endeavor to resuscitate an old civilization, to engraft the Christian Roman culture on the vigorous stem of the Teutonic races, and to unite all the Germanic tribes in one empire, before the long action of historic influence had stamped upon them a distinct national character — this was to a great extent a failure, because one life-time was too short for its accomplishment. His greatness lies in the nobility of his aim, in the energy and wisdom with which he carried it out during his life, and also in the enduring traces of valuable work which remained notwithstanding the general wreck of his empire; for, though the central organization was swept away, the provincial authorities remained to be transformed into the new feudal organization of Western Europe, whilst the idea of the revival of the Christian Roman Empire was to be taken up by other sections of the German race. Though the circumstances of his time prevented him from being the founder of a new epoch in history, like Cæsar or Alexander, yet, in the greatness of his character, in his marvellous many-sided activity, and in the magic influence of his name on subsequent generations, he was equal to either.

CHARLEMAGNE, JEAN ARMAND (1759–1838), a French dramatic author, was born at Bourget in 1759. He is the author of a large number of comedies, poems and romances.

CHARLEMONT, a great fortress on the Franco-Belgian frontier, on a rock above the town of Givet. See GIVET.

CHARLEROI, a town of Belgium, in the province of Hainault, about 33 miles south of Brussels, on the Sambre, a navigable tributary of the Meuse.

CHARLES I. (1600–1649), king of England, born at Dunfermline on the 19th November, 1600, was the second and favorite son of James I. By the death of his brother Henry, he became Prince of Wales in 1612, but the first public matter of importance in which he was concerned was the Spanish marriage. James was persuaded to demand the restoration of the Palatinate to the elector of Frederick as an essential preliminary; the match was broken off; and in 1624 Buckingham had arranged a marriage with Henrietta Maria of France. Not the least dishonorable part of Charles's conduct in connection with this affair was his treatment of the earl of Bristol, the English ambassador to Spain. This only too faithful servant of the Crown he was mean enough to subject, at the instigation of his favorite, to a persistent and illegal persecution.

In March, 1625, Charles came to the throne. The excited joy with which he had been welcomed home from Spain had given way to suspicion as fuller reports of his conduct spread abroad, and there was now prevalent an anxious dread of the growth of Catholicism. The first Parliament sent Montagu to the Tower for preaching the doctrines of divine right and the real presence; and as difficulties arose concerning the old method of levying tonnage and poundage, it refused to grant the impost for more than a year. To please the duke of Buckingham, Charles dissolved the Parliament, and took a pitiful revenge by making Montagu royal chaplain.

The king was now at the disposal of his favorite, who

was full of great and warlike schemes. All were, however, doomed to failure. The English sailors refused to fight against the Huguenots of Rochelle; the expedition against Cadiz was mismanaged from first to last; and, worst of all, the pawning of the crown jewels brought in but a very small sum. It was necessary to summon another Parliament.

But this Parliament was not less determined than the first. The Commons, led by the ardent and eloquent Sir John Eliot, ventured on the bold step of exhibiting eight articles of impeachment against the duke of Buckingham. His majesty replied with a haughty message that the duke had acted only at his direction, threw Eliot and Sir Dudley Digges into prison, and finally dissolved the Parliament again, without any improvement of his finances. Forced loans were resorted to; the common people who refused to pay were pressed for the navy; the gentlemen were summoned before the council, or committed to prison by special order of the king. At this inopportune moment Buckingham provoked a war with France, and led an expedition against Rhé, which proved an utter failure. In 1628 Charles was compelled to call a third Parliament.

The House of Commons which now assembled was remarkable alike for the social standing of its members and for their wealth, which was three times that of the House of Lords. But equally with the other two which had met in this reign, it was determined to obtain redress of grievances. Its first act was to draw up the Petition of Right, which declares the illegality of forced loans, of martial law in time of peace, and of the billeting of soldiers on private houses. Characteristically, Charles at first attempted an evasive reply — "The king willeth that right be done according to the laws and customs of the realm." When, however, the Commons proceeded to censure Buckingham, he gave the regular formal assent. Yet such was his insincerity that he caused 1500 copies of the Petition to be distributed with the first answer attached. The Commons now made known their readiness to vote tonnage and poundage, provided that the king would admit that his arbitrary levy had been illegal; and Hollis and Valentine held the speaker in the chair while Eliot read a protest against Arminians and Papists, and against the irregular levy of tonnage and poundage. A few weeks before, Buckingham had fallen by the dagger of a disappointed officer. But the king's policy was unchanged. The usual plan of dissolution was resorted to; and Eliot, Hollis, and Valentine were heavily fined, and so strictly imprisoned that, though Eliot's health gave way, his petitions for a temporary release were repeatedly refused by Charles, and he was allowed to die in the Tower.

From this time there was no Parliament for eleven years (March 1629 to April 1640). Every year made the people better acquainted with the character of their king, who showed an unhappy ignorance both of the history and the temper of the nation; and taught them to feel more and more deeply that stronger safeguards were needed to withstand the arbitrary power of the sovereign. The London merchant who compared the rule of Charles to that of the sultan of Turkey was not altogether unjust. A paternal government was his *beau-ideal*; and Parliament was to be summoned only to give advice to the king, and to acquaint him with the needs of the people. The Petition of Right, to which he had recently given his assent, he utterly disregarded. He descended to a puerile exercise of authority. His proclamations forbade the country people to come up to the metropolis, commanded all the shops in Cheapside, except those of the goldsmiths, to be shut, and prohibited the building of more houses in London, unless special leave (to be well paid for) were first obtained.

But the great necessity was to procure money. The Council of the North was directed to compound with recusants. Monopolies were granted to companies in defiance of the spirit of the law. Neglect of the knight-hood which was no longer an honor was punished by a fine, which was often extremely severe. Pretensions to forest-lands, which prescription had long made unjust, were revived. And, lastly, the famous ship-money was levied. Besides, Charles must also be held personally responsible for other tyranny than that which was executed at his direct command. During these years Stafford was maturing his policy of "Thorough," by which England was to be made subject to a standing army; and if Charles did not carry out this scheme as far as might have been possible, it was not because it was too bad, but only because it was too great for him. Though he had no love for its inventor he showed his respect for his absolute policy by making him president of the Council of the North, and sending him to govern Ireland with an iron sternness, which, though it certainly added to the prosperity of some parts of the island, as certainly helped to arouse in others the feeling which resulted in the horrors of the Irish massacre. He allowed the Star Chamber to sentence a clergyman to perpetual imprisonment, mutilation, and whipping for a libel against the bishops, and to reduce a gentleman to poverty for merely sneering at the badge of a nobleman. He sanctioned the inquisitorial Court of High Commission. He supported Laud's oppression of the Puritans, his inculcation of celibacy among the clergy, of auricular confession, of prayers for the dead, and of the doctrine of purgatory, and he advanced men like Montagu, whom he knew to be desirous of a reunion of the English Church with Rome, confirming by all this the suspicions which the disclosures of Bristol had awakened.

At length, on his own sole authority, he commanded Scotland to receive a liturgy and a book of canons. The fatal results of this act belong to the history of Scotland. Unable to meet the Scottish army with a sufficient force, Charles summoned the Short Parliament; but as it refused to vote supplies till it made inquiry into the causes of the imprisonment of Eliot and his two companions, into ship-money, and other matters of that kind, it was speedily dissolved. A great council of the peers would not act alone; and in November, 1640, he was compelled to summon the Long Parliament. The Commons were now happy in a leader magnificently fitted for the times. His fiery energy was repressed, not quenched, by the ripeness of his age; his courage and determination were too firm to be shaken; his respect for law and order was deep and strong; but deeper still and stronger were his love of liberty, and his resolve that nothing should serve as a bulwark against despotism. With the sagacity of the true statesman, Pym struck the first blow at the strongest pillar of the hateful structure. He exhibited articles of impeachment against the earl of Strafford. The impeachment was allowed to drop (against his wish), but it was only in favor of a bill of attainder. The preachers preached and the mob yelled against the great delinquent. The king went in person to the House of Lords, and tried to buy him off by promising never to employ him again; and then listened to a scheme, hatched by certain hot-headed officers and some of the fierier of the courtiers, to bring up the army of the north and overawe the Parliament. But his entreaty was voted irregular; the plot was discovered, and the earl was condemned to death. Charles's weakness was now fatal to himself. A few months later the splendid ability of Strafford would have been invaluable to him. But he had no affection for the stern, haughty "dark

earl," and, when the Lords refused his humiliating request that they would suggest to the Commons some milder punishment, he sacrificed his greatest servant. At the same time, Charles, who never knew the true place for firmness, yielded on another fatal point by confirming a bill, according to which the Parliament then sitting was not to be dissolved without its own consent. Before the triumphant course of the Commons everything had now to give way. The Triennial Bill was passed, ship-money, the Star Chamber, the High Commission, the Council of the North, the Council of Wales, the Council of Lancaster and Cheshire, the whole system of illegal exaction and injustice, were swept away. The religious passion of the Houses manifested itself in an impeachment of Laud, and a proposal to abolish Episcopacy.

Charles once more resorted to the crooked policy which he usually employed in extremity. He visited Edinburgh, attended the Presbyterian worship, and loaded Argyll, Hamilton, and other Presbyterian leaders with marks of favor, while all the time he was intriguing with the earl of Montrose, Argyll's open enemy. There was a darker suspicion at the time that an attempt, known as the "Incident," had been made by Montrose, with the king's knowledge, to assassinate Argyll; but this worse treachery is by no means proved. At this moment, while men's minds were full of excitement and apprehension, a massacre of thousands of Protestants took place in Ireland. It was known that O'Neale, the leader of the butchery, professed to have the king's written warrant and the ardent support of the queen; and many believed the hideous charge. They would have been more strongly convinced had they seen the letter in which his majesty coldly remarked that he trusted this trouble in Ireland would help to cure the folly at home. Other plots were also being discovered, of which men more naturally ascribed some knowledge to the king. Pym's life was in constant danger. An attempt was made to convey plague infection to him in a letter, and a gentleman was stabbed by mistake for him in Westminster Hall.

But Pym and the Parliament yielded not one step. On the 1st December, 1641, the Grand Remonstrance was presented to the king, who received the committee which presented it in the highest spirits. He had returned from Scotland but a few days before, had been entertained at a great banquet by the Lord Mayor, and had made up his mind to show the Parliament that he was not to be trifled with. He had already appointed Colonel Dunsford, a disreputable scapegrace, to the command of the Tower. He now replaced the guard, which had protected Parliament since the news of the Army Plot, by a company under the earl of Dorset, who did not pass his first day of duty without firing on the people. Mobs far from orderly began to assemble round Westminster Hall, and a petition against the bishops was presented to the Commons. The bishops themselves were mobbed on their way to the House, and when they protested against the legality of what should be done in their absence, were summarily silenced by an impeachment. The excitement in the city grew dangerously intense, and Charles fanned the flame by accepting a company of armed soldier-adventurers as guard, and allowing them to quarrel with the unarmed crowd.

It was on the 3d of January, 1642, that the fatal breach was made. Pym was not to be gained over, for only a few days before he had refused office. The king now practically declared war against the Parliament. How far he acted alone is disputed; but Clarendon is very likely right in saying that he was goaded on by the queen, who had retained from the political theory in which she had been educated some very lofty notions about the

rights of kings and the duties of parliaments. On the morning of the 3d, he commanded Attorney-General Herbert to impeach Lord Kimbolton (against whom, however, the matter was not pressed), Pym, Hampden, Haslerig, Hollis, and Strode on a charge of high treason, founded upon their parliamentary conduct. The rooms, drawers, and trunks of the five members were illegally sealed at the king's command, and the king's sergeant-at-arms was illegally sent to demand their persons. The Commons behaved with the greatest dignity. The sergeant was commanded to show his respect for the House by laying aside his mace, and four members, of whom two were privy-councillors, were sent with a message to the king that the House would give him an answer as speedily as the greatness of the business would allow, and that the members should meet any legal charge against them. But Charles had determined to crush the Parliament by force, and to make it for ever subservient to the Crown. He sent orders to the lord mayor that the guard sought by the Parliament should be employed to disperse all crowds, and to "shoot with bullets" all who resisted. On the morning of the 4th, at the head of his attendants, his pensioners, and the Whitehall guard, armed with partisans, swords, and pistols, to the number of three or four hundred men, he entered the House of Commons, and demanded the persons of the five members, declaring that treason has no privilege. But, with the formal consent of the House, they had taken refuge in the city; to the king's demands the sole reply was that given by the speaker, bravely, though tremblingly, and on his knees, that he could speak only as he was commanded by the House; and Charles was obliged to retire with undignified threats upon his lips. The consequence of this act was the most terrible excitement. Some members of the Commons cried "Privilege" in the very presence of his majesty. In London the shops were shut; there was a report that the cavaliers, with the king at their head, were about to fire the city, and it became known that a seizure of the arms of the citizens was contemplated. When the king visited the city next day, in the streets and in the court-room of the common council, he was met by cries of "Privilege of Parliament!" The panic still grew; the streets were thronged with almost frenzied crowds; the train bands were collected. Other crowds poured in from the country, one with a petition signed by thousands for the protection of Pym, another, from Buckinghamshire, eager to live and die with Hampden, to serve the Commons, respectfully to petition the king. The very sailors in the river caught the enthusiasm, and offered their assistance. And the House of Commons, declaring itself no longer safe at Westminster, adjourned first to Guildhall and then to Grocers' Hall. On the 10th Charles, seeing that the true magnitude of his attempt had been understood, and that he was met with his own weapons, retired in alarm to Hampton Court. On the following morning the five members returned to their seats in triumph, amid salutes from the river, the shouts of the crowd, and a parade of the train bands.

The Parliament retaliated the king's attack by passing a bill assuming the command of the militia, and appointing the lieutenants of counties. But the king on his journey from Dover, where the queen had embarked with the crown jewels, had met with so many expressions of loyalty that he refused his consent. He requested, however, that all requirements should be drawn up in one document, and submitted to him. Accordingly, in June, 1642, Parliament presented "The Nineteen Propositions." They were such as would have entirely altered the constitution. Constitutional concessions could no longer avail the king; fifteen years

of unconstitutional rule had made that impossible. He had striven to obtain the tyranny; he had appealed to force; and the Civil War had already begun with the Westminster tumults. On the 22d August, 1642, it was formally commenced by the erection of the royal standard at Nottingham. At first success was on the side of the king, and the Parliament suffered so severely in the west that they began to discuss terms of peace, while several defections to the royalist party took place. But Charles was too highly elated; having summoned a parliament of his own at Oxford, he declared that which met at Westminster to be none; and when the earls of Holland, Bristol, and Clare came over to his party, he treated them with so much neglect and insult that after three months they turned back, and no others risked the treatment they had received. But as the troops of the Parliament became accustomed to the use of arms, and its officers to the tactics of war, the inferiority of the royalists became apparent. In the beginning of 1645 the Parliament was in a position to demand, in the treaty of Uxbridge, that Presbyterianism should be established, and that it should have the command of the army and the navy and the direction of the war with Ireland.

In the same year, after the decisive victory at Naseby, the king's cabinet, containing a number of letters which proved that he was promising toleration to the Catholics and seeking aid from several foreign powers, fell into the hands of the Parliament, and the letters were published. Soon after a still more important discovery was made,—that of a treaty entered into, by means of the earl of Glamorgan, with the Irish Catholics, whose aid was to be bought at the price of great religious concessions. Charles denied all knowledge of the affair, and Glamorgan was imprisoned for a short time; but subsequent evidence gives strong reason for believing that he was deeply implicated in the matter. Owing to the anti-popish bigotry which they offended, and the insincerity which they manifested, these disclosures were extremely damaging to the king.

In May of the next year Charles had fled to the Scots at Newark; and in January, 1647, he was delivered by them into the hands of the English Parliament, who placed him in Holmby House, six miles from Northampton. Terms similar to those offered at Uxbridge were again tendered at Newcastle; but Charles, being sincerely attached to Episcopacy, was most unwilling to yield concerning church affairs, and holding himself necessary to any settlement, believed that he had only to insist upon more favorable offers. In June the army took possession of his person, and finally brought him to his palace at Hampton court. He was treated with respect and kindness; Cromwell and Ireton sought to bring about a secure peace; and the latter, on behalf of the agitators or Adjutors, who formed the Parliament of the army, drew up most favorable terms. But unable to see that the army was now supreme, and hoping contrary to his whole experience, to obtain something more from the Parliament of the Scots, with whom he was treating, Charles haughtily broke with the officers, and scornfully refused their offers. To many it was now apparent that it was vain to hope for a settlement by means of compromise.

From this moment the ascendancy was taken by a party of enthusiasts, who held that a crown should not excuse the crime of treason against the country, and sternly called for justice on the grand delinquent. Fearing assassination, Charles fled to the Isle of Wight, where, however, he was captured. But trusting in the Scots, who now prepared to protect him by force, he still rejected the offers of the Parliament, which were again tendered to him at Carisbrook and at Newport.

At length the army impatiently seized him once more, removed him to Hurst Castle, and thence to Windsor and St. James, purged the Parliament by excluding some hundred and forty members, and resolved to bring him to trial. On the 1st of January, 1649, though the Peers adjourned refusing to consider the question, the Commons voted the appointment of a High Court of Justice "to the end no chief officer or magistrate might presume for the future to contrive the enslaving and destruction of the nation with impunity." One hundred and thirty-two commissioners were elected, of whom about half took part in the trial. Bradshaw was elected Lord President, and Cook solicitor against the king. On the 20th, the 22d, and the 23d, Charles was brought before this court; but with a calm and admirable dignity, due to a sincere belief in his own pretension, he proudly refused to acknowledge the court, declaring that obedience to kings is commanded by Scripture, that by the law the king can do no wrong, that the Commons have no authority of themselves to erect a court of judicature, and that they had not received such authority from the people, whose power to confer it he, besides, declined to admit. On the 26th the court went through the form of listening to evidence that he had appeared in arms against the Parliament, which was declared to represent the nation. On the 27th Bradshaw pronounced sentence of death against Charles Stuart, as a tyrant, a murderer, and a traitor to his country; and on the afternoon of the 30th of January, 1649, Charles was beheaded in front of the Banqueting House at Whitehall. His body was conveyed to Windsor, and on the 8th of February was buried in St. George's Chapel without any service.

In person and in demeanor Charles presented a most favorable contrast to his ungainly, babbling father. A somewhat painful stammer was his only physical defect. His manner, also, was grave and reserved; his scrupulous observance of the ordinances of religion was accompanied by strict decorum of conduct; and he possessed considerable taste for literature and art. Yet of almost all the essential kingly qualities he was utterly destitute. He had, indeed, a strong sense of personal and royal dignity, but this very feeling was fatal to him. It rendered intolerable the least limitation of the prerogative which he believed to be his divinely-appointed birthright; and thus it placed him in obstinate opposition to the strongest tendency of his time,—that tendency which had already resulted in the Reformation, and which now manifested itself in the development of Puritanism and the growth of the English constitution. Nor did he possess the qualities which might have given him a chance of success in the contest. Affectionate towards his intimate friends to a degree of weakness which often aroused contempt, he had no magnanimity for an enemy, nor even fidelity to a servant, however great, who did not awaken his fondness. In political sagacity he was utterly wanting; and so completely did he identify political skill with duplicity that, in public matters, he could never be trusted, and compromise with him was impossible.

CHARLES II., king of England, born in 1630, though the second son of Charles I., was Prince of Wales from his birth. In the earlier and more important campaigns of the Civil War he held a nominal command in the west, but he was too young to take any real part in the conflict. After the battle of Naseby he passed by way of Sicily and Jersey to join his mother at St. Germain. Till 1649 he spent his time either at Paris or at the Hague, without interfering in public affairs, except when he attempted to save his father's life by forwarding a signed *carte blanche* to the Parliament to be filled up with any terms which they would accept as

the price of his safety. On the execution of Charles I., he immediately assumed the title of king. The Scotch Government offered to place him on the throne by force, and sent a deputation to the Hague. For a time Charles protracted the negotiations, meanwhile urging Montrose to make him independent of the Presbyterians. But when the rising was crushed, and Montrose himself executed, he accepted their invitation. In June, 1650, he landed in Scotland; and he was crowned at Scone on the 1st January, 1651. But as he had been obliged to sign the Covenant, and conform to the austere manners of the Covenanters, he soon began to feel the price of their assistance intolerably heavy. The secret efforts which, during the whole time he was treating with the Presbyterians, he had been making to bring together a sufficient force of Highlanders proved unsuccessful; and, on the defeat of Leslie at Dunbar, he was glad to march south, with the hope of arousing the loyalty of the English. The appeal failed; and the royalist forces were again routed by Cromwell at Worcester (1651). Thanks to his own great coolness and address, and the fidelity of those in whom he confided, Charles contrived to reach France. Here he remained till 1654, when, having received a pension from the French king, he retired to Cologne. Thence he removed to Bruges, where he principally resided till the death of Cromwell.

For the most part, notwithstanding the smallness of his means and the wretchedness of his circumstances, he passed his time in careless dissipation, surrounded by a little court in which the few old cavaliers, like Clarendon, who maintained the dignified manners which had adorned the court of Charles I., were lost in a crowd of gay young libertines and sprightly women of disreputable character. His applications for assistance to France and Rome were all unheeded; and he was equally unsuccessful in his attempts to contract an advantageous marriage. At length, through the contrivance of General Monk, but still more through the open and enthusiastic wish of a large portion of the people, he was recalled to England; his conciliatory declaration from Breda was well received; and he entered London amid sincere public rejoicings on his thirtieth birthday, May 29, 1660.

Charles's course was at first attended by no difficulty. The loyalty of the Convention summoned by Monk was sufficient for the time. It sympathized in the one desire for vengeance in which he was earnest; it was resolved on the punishment of the regicides. Thirteen were executed, some in direct opposition to the apparent intention of the king's declaration of oblivion; the bodies of Cromwell and Ireton were hung in chains; and even the coffin which contained the ashes of Blake was cast out of Westminster Abbey and thrown into a common churchyard.

It was the Protestant temper of the nation which was the most powerful influence against which Charles's policy had to contend. Fortunately for himself he was able to estimate its strength. Himself a Roman Catholic, he made several attempts to grant toleration to his co-religionists; but he always gave way when the anti-papish passion seized the people.

It is remarkable that the matter in regard to which Charles most firmly withstood opposition was one in which he was not personally concerned—the exclusion of his brother, the Duke of York, from the succession. This is the more remarkable as there is good reason to believe that his affection was much stronger for the duke of Monmouth, his own son by Lucy Walters. He treated him like a legitimate prince, and permitted him to wear the royal arms without the bar sinister, and to make progresses through the kingdom, on which he was

received as if he had been heir to the throne. Towards the end of his life (in 1682), however, he was so seriously displeased with one of these progresses as to banish the duke to Holland; possibly the license which Monmouth assumed was only permitted by the king; and we may, perhaps, give him credit for having all along unselfishly desired that his brother and a Catholic king should succeed him.

Concerning the character of Charles historians are in general agreement. His selfishness, which was of the sensual, indolent, good-humored type, was such that he was incapable of understanding motives different from his own. His chief aim was to support, without trouble or censure, his own gay and dissipated life, and his troop of mistresses. This was no easy matter; his mistresses were numerous, and he was fond of indulging them to the utmost of his power. One was raised to the rank of duchess of Portsmouth, another to that of duchess of Cleveland; six of the sons they brought him were created dukes; and means were supplied to maintain their lofty dignity. They occupied a recognized position at court; and the queen was obliged to humiliate herself, and to treat them without scorn, and even with familiarity. In short, the court of Charles was the most scandalous which England has seen. Yet, being affable and witty, and free from all vindictiveness, Charles enjoyed a good deal of popularity, if nothing of respect.

In 1662 Charles married Catherine, princess of Portugal, who brought him half a million of money, Bombay, and the fortress of Tangiers. He died probably of apoplexy, without legitimate issue—for there is no evidence to support the popular belief in the legitimacy of Monmouth—on the 6th February, 1685, after receiving extreme unction from a Roman Catholic priest named Huddleston.

Throughout his whole reign, and especially by his secret negotiations with Louis XIV. of France, whose pensioner he was not ashamed to be, Charles exerted a powerful and harmful influence on English politics; but his political action is matter of history, and is treated elsewhere.

CHARLES I., the Bald, king of France and emperor of the Romans, was son of Louis le Debonnaire, by his second wife Judith. To furnish him with a kingdom, his father deprived his elder brothers of some of the territory he had previously assigned to them, and war ensued, at the end of which, after many failures and successes, Charles was left in possession of a great kingdom in the west of the empire. On the death of his father in 840, Charles sought to succeed as emperor, and allied himself with his brother, Louis the German. In 841, in a battle at Fontenai, remarkable for the number of the slain and the fierceness with which it was contested, Charles's rival and eldest brother Lothaire was defeated; but such had been the loss even of the victor that it was impossible to follow up the victory. The alliance between Louis and Charles was renewed, the former taking his oath in words which form one of the earliest specimens of the Romance language; and in 843 the treaty of Verdun confirmed to Charles the possession of his kingdom, which comprised France to the west of the Meuse, Saône, and Rhone, and Spain from the Ebro to the Pyrenees. The weakness of Charles's government was, however, extreme. The Normans, sailing up the rivers in small companies of a few hundreds, pillaged the country almost without resistance; at length in 858 the people in despair, calling in the aid of his brother Louis, drove the king from the country for a time. Charles was entirely under the control of the bishops, and his submission did not go without reward; in 875 he was crowned emperor by the Pope. But Louis attacked him with great success; and his power was far from stable when,

having been summoned into Italy by the Pope against the Saracens, he died in 877 near Mont Cenis. The last and perhaps most important act of his reign was the decree of Chiersi, by which the tenure of the counties was made hereditary.

CHARLES II., the Fat, king of France and emperor of the Romans, was the third son of Louis the German. Swabia he inherited from his father; the death of his brother Carloman of Bavaria made him king of Italy in 880; in 881 he was crowned emperor; the death of another brother, Louis of Saxony, gave him possession of all Germany in 882; and that of Carloman the French king in 885 left him the kingdom of France. Thus, by no effort of his own, he became sovereign of all the dominions of Charlemagne. But he was soon found to be utterly incapable of ruling. He was, in fact, given up to pleasure, especially to the pleasures of the table. When the Northmen besieged Paris, he made not the least attempt to repulse them by means of the vast army which he led against them, but bought them off with disgraceful presents. He was, therefore, justly rejected by the people; in 887 he was deposed at Tribur; and he died in a cloister during the following year.

CHARLES III., the Simple, king of France, was a posthumous son of Louis the Stammerer. On the deposition of Charles the Fat in 887, he was excluded from the throne by his youth; but during the reign of Eudes, who had succeeded Charles, he obtained the alliance of the emperor, and forced the former to cede Neustria. In 898, by the death of his rival he obtained possession of the whole kingdom. His most important act was the treaty which he made with the Normans in 911. They were baptized; the territory which was afterwards known as the duchy of Normandy was ceded to them; and their chief Rollo, married the sister of the king, and was created duke. In 922 the barons, jealous of the growth of the royal authority, rebelled and elected Robert, brother of the late king, in place of Charles. Robert was killed in the battle of Soissons by Charles's own hand, but the victory remained with his party, who elected Raoul, duke of Burgundy, king. In his extremity Charles trusted himself to Herbert, count of Vermandois, who deceived him, and threw him into confinement. Released by his old enemy, Raoul, he died at Peronne in 929.

CHARLES IV., the Fair, (1294–1328), king of France and Navarre, was the third son of Philip the Fair. In 1322 he succeeded his brother Philip V. on the throne of France and Navarre. The chief aim of his domestic policy was to free the country from the Lombards and from the exactions of the barons and the judges; and he did something to improve the condition of the Jews. He assisted his sister Isabella in her contest with her husband Edward II. of England. In 1325, being supported by the Pope, Charles sought the imperial crown, but without the least success.

CHARLES V. (1337–1380), king of France, born in 1337, was the son of John II. His physical weakness, precluding him from the usual ambitions of his rank, led him to cultivate the taste for literature and the political ability which gained for him the title of "the Wise." From the age of nineteen to that of twenty-three, during the exile of his father, a period of great disturbance and difficulty, he ruled as lieutenant of the kingdom. The first States-General which he summoned, led by Stephen Marcel, president of the tiers-état, and Robert le Coq, president of the clergy, refused to raise levies or subsidies, and demanded, first, the trial before judges nominated by themselves of the ministers of justice and of finance, whom they accused of corruption; secondly, the establishment of a council chosen from the three chambers to be consulted in all cases by the dauphin;

and lastly, the release of the king of Navarre. Next year (1357) they were equally determined; they forced the dauphin to give his assent to an ordinance which greatly extended the authority of the States, and the commission appointed to carry it out ruled for some time with dictatorial power. The authority of Marcel also was such that he was bold enough to enter the palace of the dauphin, and slay two of his chief officers, — the marshals of Champagne and Normandy. At the same time another enemy, Charles, the king of Navarre, was enjoying unbounded popularity among the people of Paris, and maintaining their cause. France, indeed, seemed ripe for revolution, for its condition was wretched in the extreme. The heartless ravages of the English, of the free companies, and of the French nobles themselves had laid waste the country, and maddened the peasantry till, under the name of *La Jacquerie*, they burst into hideous revolts, in which they committed the most brutal outrages against the hated nobility. But after a few months, by the assassination of Marcel, and the support of the nobles and of the provincial States, Charles regained the supremacy. When he again appealed to the States-General, in order to obtain the rejection of the ruinous treaty of London, which John had signed in his eagerness to procure his own release, he also received from them troops and money to carry on the war in Picardy. But he never again convoked them, except on one occasion (in 1369), when they are said to have proved extremely submissive. Ever after he had recourse to Assemblies of Notables, or to the Provincial States, which never ventured to offer him serious opposition.

From 1360 to 1364 John, ransomed by the treaty of Bretigny, ruled in person; but in the latter year, to save his honor, he returned to London, and in April he died there, leaving the crown to Charles.

Charles at once set himself vigorously to the task of binding up the wounds of the kingdom, and preparing to expel the English. He employed Duguesclin, an able soldier of Brittany, to lead 30,000 men of the free companies into Spain, and to set Henry of Transtamare upon the throne. Thus he not only freed the country from a grievous scourge, but also obtained the friendship of the Spanish king. He had already made alliances with the king of Castille, with the count of Flanders, with Scotland, and even with Charles of Navarre; and after having carefully fortified the principal towns, he provoked a renewal of the war with England. The wise policy on which he had resolved was carried out with great firmness. Pitched battles were avoided, and the enemy, being repulsed by the towns, had nothing left but to ravage the country, with the result of deepening the hatred of the people. The Bretons were gained over, and soon all the land to the north of the Garonne ceased to belong to the English (1373). In 1380 the conquest of Guienne by the French left them only Bayonne, Bordeaux, Brest, and Calais.

At the same time Charles crushed his other great enemy, the king of Navarre. After accusing him of various plots against himself and other members of the royal family, he took his two sons as hostages, executed two of his ministers, and raised up enemies against him who seized great part of his territory, and forced him to give up twenty places as security for peace.

But Charles's last aggressive attempt was not equally successful. He summoned the duke of Brittany before him, and when he failed to appear, declared his dukedom confiscated to the crown. The result, however, was that the people recalled the duke, who had previously been banished, and formed an alliance with England. While affairs were in this condition Charles died at Vincennes, on the 16th September, 1380.

His reign had left many important results. The country had been freed for a time — though, unfortunately, only for a time — from its two great scourges, the free companies and the English. The residence of a Pope at Avignon under the influence of the king tended to make the Gallican Church more independent. The privileges of the nobility were somewhat invaded by Charles's favor to the bourgeoisie of Paris. Something was done to increase the purity of the administration of justice, and the Parliament of Paris was allowed to become self-elective, — a reform which, however, was only temporary, a retrogressive change being made under Charles VII. On the other hand, the States-General were silenced; the personal power of the king was increased; and the weight of taxes, often from their nature peculiarly oppressive, was greatly multiplied, for, notwithstanding the grievous war expenses, Charles set no limit to the free indulgence of his tastes. He left several costly specimens of the expensive art of architecture, including the splendid place of Saint Paul and the strong walls of the Bastille; and he distinguished himself still more honorably by founding the royal library at Paris.

CHARLES VI. (1368–1422), king of France, was the son of Charles V., whom he succeeded in 1380, at the age of twelve. The treasure left him by his father was at once seized by his four uncles, the dukes of Berry, Burgundy, Anjou, and Bourbon, whose tyranny and rapacity aroused a general rebellion throughout France. It gained the supremacy in Paris (where the insurgents, from the weapon with which they armed themselves, took the name of *Maillotins*), in Rouen, and in many other French towns, and also in the Flemish cities, of which the foremost was Ghent, now led by Philip van Artevelde. At first the union of the popular parties in the various towns was successful against the nobility, but in 1382 the latter won a great victory to Roosebeke, in which Artevelde was killed, after which many of the rebels were punished by death or by heavy fines. In 1385 immense and costly preparations were made for an invasion of England, in which the king was to take part in person, but on account of various obstacles, over which he had not sufficient resolution to triumph, nothing was done. In 1388, with the advice and support of the cardinal of Laon, Charles, who had six years before reached the age fixed for his majority by his father, threw off the control of his uncles, the dukes of Berry and Burgundy. But in 1392, on his march against the duke of Brittany, who had seized and then attempted to assassinate the constable De Clisson, the appearance of a rough-looking man, who declared that the king was betrayed, so affected him that, in a fit of madness, he killed four of his attendants, and was for some time after insane. During the next year another accident, by which he was nearly burnt to death, brought on a second fit, from which he never completely recovered. By these unfortunate events a field was opened for the ambition of the dukes of Burgundy and Orleans. The latter first obtained the government; but the former, John Sans Peur, as champion of the people of Paris, gradually became so powerful that, in 1407, he ventured to assassinate his rival and allow the mob to massacre his adherents. But a confederacy was formed against him, the duke of Orleans who succeeded his victim being joined by the dukes of Berry, Bourbon, and Brittany, and the powerful and able count of Armagnac. The Parisians opened their gates to the Armagnacs (as the party was now called), but they in turn treated Paris as if it had been a hostile city conquered by force. In 1415 Henry V. of England, the fulfilment of the treaty of Bretigny being refused, landed in France, and gained the victory of Agincourt. In 1418 the gates of

Paris were opened to the duke of Burgundy, and another massacre of the Armagnacs took place. Famine and plague carried off thousands of others. Charles died, deprived of almost every sign of royal dignity, in 1422.

CHARLES VII. (1403-1461), king of France, the son of Charles VI., was betrothed at ten to Mary of Anjou, daughter of Louis, King of Sicily, whom he married nine years after. He became dauphin at the age of thirteen; and while only fourteen, on account of the insanity of his father, he held the position of lord-lieutenant of the kingdom. At first the strong hand of Bernard of Armagnac, the constable, guided the government; but the triumph of the Armagnacs, crowned by the murder of John of Burgundy in the very presence of the dauphin, brought the most serious trouble upon France. Aided by the Burgundians, the English soon gained a mastery so complete that in 1420 the treaty of Troyes conferred the succession upon their king, Henry V., who had married Catherine, the daughter of Charles VI. In August, 1422, however, Henry died, and Charles VI. a few weeks after. Bedford became English regent of France; and the ability of his administration resisted all hostile attempts. The defeats of the French at Crevant (1423) and Verneuil (1424) were disastrous, and their successes were few and unimportant. It was plain that Charles, intent upon nothing but a round of frivolous dissipation, would never effect the independence of the country. Though he was capable of being roused to energy, the weakness of his character was conspicuous. He was dependent upon a succession of advisers, which included both the worst and the greatest men and women of his day. No king was ever cursed by more worthless favorites than Charles during his youth, and no French court was ever in a state of more miserable anarchy than that of the first years of his reign; but yet to none could the title of "Well-Served" have been more fitly applied, for none has borrowed more undeserved glory from the great men who surrounded him. Favorite at first rapidly followed favorite, — Tannegui Duchatel, the lawyer Louvet, Pierre de Giac, the haughty Lecamus de Beaulieu, and La Trémouille.

But France was not entirely left to these selfish courtiers. A national spirit was rising, and she possessed many bold soldiers who were willing to fight her battles. The constable Richemont, though violent, and though he unfortunately labored under a superstitious terror of heresy and sorcery, was honest and capable. Under him fought Dunois the bastard of Orleans, La Hire, Xaintrilles, Brézé, Jean and Gaspard Bureau, and the three brothers Chabannes. But the greatest impulse was given to the French arms by the noble country maiden, Joan of Arc, who, after placing the king firmly on the throne, received from him as reward nothing but jealousy and the most heartless desertion (see JOAN OF ARC). The benefit which she wrought for France did not end with her life. The English were still forced to give way. In 1435, by the treaty of Arras, Philip the Good of Burgundy broke with them, and joined the French; the death of Bedford in the same year left them no chance of rallying, and soon Paris received its rightful sovereign.

In the meantime a great change had come over the court and the king. Charles had fallen into better hands. A most beneficial influence has been ascribed to Yolande of Aragon, his mother-in-law, Isabel of Lorraine, his sister-in-law, and Agnes Sorel, his mistress. And, more important still, a great revolution had taken place in the royal council, a large part of which now consisted, not of nobles, but of commoners. The greatest of these was Jacques Cœur, who, having

amassed a vast fortune by financial speculations and commerce had become the *argentier* of the king, and gradually acquired power in all the branches of administration. Surrounded by men of energy and patriotism, Charles's facile nature reflected both these virtues, and he appeared in the battle-field among his troops. Normandy was recovered by Dunois and Richemont (1449); the English were driven out of Guienne; and in 1453 there remained to them nothing but the single fortress of Calais. Among the other important events that had meanwhile taken place may be mentioned the ratification in 1438 of the "Pragmatic Sanction," and extensive army reforms whereby both privates and officers became immediately dependent upon the sovereign.

In 1450 Agnes Sorel died. Soon after, and in connection with her death, occurred Charles's second great act of ingratitude. Jacques Cœur, by aid of whose abilities and money much of the success of the reign had been achieved, was accused of intrigues with the dauphin, and charged with poisoning Agnes at his instigation. He cleared himself of these charges, but others were immediately substituted, which, so far as they were true, afford no excuse for Charles. He was condemned to death; and though his life was spared, his property was confiscated, and himself banished from the country (1453).

Towards the close of Charles's life his condition became even more scandalous and wretched than it had been in the troublous times of his youth. With the death of Agnes all show of dignity and decency was cast aside, and the king at length died, the miserable victim of his own faults. Bitter ill feeling had arisen between him and the dauphin; the latter had fled; his father's repeated intreaties could not induce him to return; and Charles, insane through his fear that his son would seek to get rid of him by means of poison, refused to eat, and on the 22d July, 1461, died at Mehun of starvation.

During this reign there had taken place three events of the first importance to France, — the expulsion of the English and of the free companies, the establishment of a standing army, supported by a large permanent tax, and the enactment of the Pragmatic Sanction. Besides these, the university of Paris has been brought under the jurisdiction of the Parliament, and other reforms, such as the shortening of the legal processes, and the strict prohibition of all presents to the members of the court, had been effected. In case of vacancies it was decreed that the Parliament should nominate two or three persons, from whom the king should select one. The Court of Aids was also instituted, to decide all cases connected with the levying of taxes; but its constitution was extremely faulty, as it gave to the same persons — viz., the treasurers — the power of extortion and of trying for extortion.

CHARLES VIII., king of France, born in 1470, succeeded in 1483 to the power acquired by the astute policy of his father Louis XI. His sister, Anne of Beaujeu, though only twenty-two, by the firmness and craft which she inherited from her father, gained the supreme authority as regent. She was opposed by the duke of Orleans and Count Dunois, who were supported by the duke of Brittany and the emperor Maximilian; but Dunois was defeated in Guienne; and in the battle of St. Aubin the duke of Orleans was routed and taken prisoner. One important internal reform took place under the government of Anne, — a change was made in the mode of election of the States-General. In the first place, members were no longer called as feudatories of the king, even barons and bishops appearing not by right of title but as representatives of the gentry and

the clergy ; and, secondly, the right of voting for members of the tiers-état was given even to the peasantry. In 1490 Anne's authority came to an end, for the king released Orleans, and entered into the most familiar friendship with him, and also took Dunois as his chief adviser. Under his influence he broke off the contract of marriage with the daughter of Maximilian, and took as wife Anne of Brittany, to whom Maximilian had been betrothed. In consequence a war broke out, in which England and Spain took part against France ; but Henry VII. was bought off by a gift of money, and in the treaty of Senlis, Spain was persuaded to make peace by the surrender of Roussillon and Cerdagne, and Maximilian by the restoration of Franche-Comté and Artois.

Charles was now at liberty to attempt the realization of his dream of founding an Eastern empire. His father had purchased the claim of the House of Anjou to the throne of Naples, and he himself bought the title of Andrew Palæologus, the nephew of the emperor of Constantinople. Having made a treaty with the Pope, Charles in 1495 entered Naples unresisted. But he showed no favor to the Neapolitan nobility, and gave all offices to his own soldiers. In consequence much discontent arose, and a league was formed against him by the Pope, the emperor, Spain, and Venice. With 5000 men he defeated at Fornova an army greatly outnumbering his own ; but the victory merely enabled him to reach France. Naples soon fell into the hands of Ferdinand of Spain ; and Charles died at Amboise, through an accident, at the age of twenty-eight, before he could carry out his intention of returning to Italy.

CHARLES IX., king of France, was the second son of Henry II. and Catherine de' Medici. At the age of ten he succeeded his brother Francis II. His mother became regent, and Anthony of Navarre lieutenant of the kingdom. During Charles's youth there was fierce and continual war between the Huguenots, under Condé and Coligny, and the duke of Guise and his adherents. In the second period of the contest Catherine opposed the former party ; but in 1570 Charles, declaring himself convinced that conformity in religion is impossible, and avowedly acting on his own judgment and in opposition to his mother, brought about a reconciliation with the Huguenots. His sister was married to the young Huguenot king of Navarre, Charles protesting that their union should not be prevented even by the Pope. Admiral Coligny was received into familiar friendship, made one of the council, and treated as the chief adviser of the king, while on the attempt to assassinate him Charles expressed deep regret and an earnest intention to punish the crime. His sincerity in this course of conduct has been questioned ; we are reminded that he was neither scrupulous nor merciful, and it is said that his restless and apparently open manner concealed a long-conceived and terrible treachery. According to another and more probable account, he was not acquainted with the plots of his mother till their fulfillment was almost at hand, and it was on the ground that the Huguenots were conspiring against the throne that he was prevailed upon not to interfere in preventing the massacre of St. Bartholomew's day, 1572. His consent was wrung from him, it is said, in an agony of passion, and the memory of the event tortured him till his death, which occurred at Vincennes only two years later. But there is no doubt that his consent was given, for next day he avowed the act, declaring that it had proved necessary in order to check a dangerous rebellion. Charles left a work on hunting, entitled *La Chasse Royale*, an edition of which, published in 1857, contains also several poems by him.

CHARLES X., king of France, a younger brother of Louis XVI., known before his accession as Charles Philippe, Count of Artois, was born in 1757. At the age of sixteen he married Maria Theresa of Savoy. His youth was passed in a course of scandalous dissipation ; but for a short time he joined the French army at Gibraltar, and during the disturbances immediately prior to the Revolution he took a minor part in politics. In July, 1789, he left France, and visited several of the European courts, in order to procure assistance for the royalist cause. On the execution of Louis XVI., he assumed the title of Monsieur, and in the campaign of 1792 he commanded a regiment of French gentlemen ; but in February, 1793, he retired to Russia, where he was warmly welcomed by Catherine. In August, 1795, he led an expedition, fitted out by the English, to assist the revolt in La Vendée but he displayed no energy, and effected nothing. Retiring after this to England, he resided for a time at Holyrood Palace, and afterwards with his brother Louis at Hartwell. In April, 1814, he was cordially welcomed back to Paris by the Provisional Government. During the reign of his brother, Louis XVIII., he was the leader of the extreme royalist party, who aimed at bringing back the state of affairs which had existed before the Revolution ; and on succeeding to the throne in September, 1824, he continued to follow the same policy. His frequent appearances in public, and the dignity of his address, at first awoke considerable enthusiasm ; but his popularity was brief. M. Villèle, who had already directed the government for some time, continued to be chief minister. A bill was passed by which a thousand millions of francs were devoted to recompense the losses of the emigrés (March, 1825). The Jesuits were, it was believed, encouraged to return to France. Severe laws were made against sacrilege, death being assigned as the penalty for theft from consecrated ground, and profanation of the consecrated elements being regarded as a crime equal to parricide ; and the censorship of the press, which he had abolished at his accession, was re-imposed. At length, in January, 1828, Charles made a compromise by replacing the unpopular ministry of Villèle by a ministry headed by the Marquis of Martignac. But the change was temporary ; soon after he called to the head of affairs Prince Polignac, a personal friend, whose views exactly coincided with his own, and the choice of whom consequently aroused the deepest dissatisfaction. But Charles refused to give way, and the address of the Chambers requesting the dismissal of the prince was answered with a dissolution.

His foreign policy, meanwhile, was popular, for his troops gave assistance to Greece and conquered Algiers. But this could not save a king who so little understood the temper of the people. On the 25th June, 1830, he issued ordinances, of which one forbade the publication of any periodical without Government permission, another dissolved the new House of Deputies which had not yet met, and a third placed the elections under the power of the prefects. This excited a spirit of resistance which spread rapidly through Paris ; barricades were thrown up ; the troops were repulsed ; and in three days the revolution was completed, Charles meantime doing absolutely nothing. At length he recalled the edicts ; and he afterwards resigned in favor of his grandson, the duke of Bordeaux. But all was now in vain. Louis Philippe was elected king ; and Charles retreated from St. Cloud to Trianon, from Trianon to Rambouillet, and finally returned to Holyrood, where he lived four years. He died at Görtz in 1836. The close of his life was spent in religious austerities, which were intended to atone for his former dissoluteness.

CHARLES I., emperor. See CHARLEMAGNE.

CHARLES II., emperor. See **CHARLES I.** of France.

CHARLES III., emperor. See **CHARLES II.** of France.

CHARLES IV., emperor of the Romans, was the son of John of Luxembourg, king of Bohemia. As a child he spent five years at Paris, but at the age of twelve he returned to his father's court. While only sixteen he was appointed viceroy of Italy,—a post of the greatest difficulty, from which it was not long before he was obliged to retire. He next took part in the Carinthian war against the Emperor Louis of Bavaria, the great enemy of the Pope. In 1346, on the death of his father at Crécy, he became king of Bohemia; and in the same year he was elected emperor in place of Louis, through the influence of Pope Clement VI. But Charles only gained this dignity at the cost of many humiliating concessions, which made him appear the mere tool of the Pope and robbed him of the respect of the electors. On the death of Louis in the next year, they refused to recognize him, and chose first Edward III. of England, then the Marquis of Meissen, and lastly, when both of these refused the honor, Count Günther of Schwarzburg. On the death of the last, however (an event which he was accused of having accelerated by poison), Charles, who had married Anne, daughter of the Elector Palatine, and given his own daughter, with Tyrol as dowry, to the duke of Austria, was unanimously elected. He devoted all his care to the aggrandizement of himself and his family; and the government of the empire was very negligently administered. In 1354 he visited Italy, and was crowned at Milan, Rome, and Ostia; but he received many indignities, being, for example, refused entrance to several cities, and only allowed to remain at Rome a single day. He was obliged to confirm the Viscontis in their usurpation; and he left the country, after amassing a large sum of money,—a mockery to both Guelf and Ghibelline. As third wife Charles took the daughter of the duke of Jauer, to whose dukedom he hoped thus to obtain the succession. He also added Brandenburg, Silesia, and Lower Lusatia to the possessions of the House of Luxembourg; and he obtained from the electors, by means of large bribes, the recognition of Wenceslas as his successor. He allowed the empire meanwhile to be overrun by banditti, and he only once took up arms. This was at the call of the Pope, to whom he was always submissive; but even on this occasion he allowed himself to be bought off by his adversaries, the tyrannous Viscontis. The only important measure which he effected was the publication of the Golden Bull (1356), which determined the method of election for the dignity of emperor. It decreed that the number of electors should be seven:—three ecclesiastical, viz., those of Mayence, Cologne, and Trèves; and four secular, viz., the king of Bohemia, the Count Palatine, the duke of Saxony, and the margrave of Brandenburg. The king of the Romans, and future emperor, was to be elected by the majority in a meeting to be held at Frankfort. The Pope thus lost all influence over elections; and to escape his anger Charles granted him a tithe of all ecclesiastical incomes, together with some other concessions. Charles died at Prague in 1378, having immensely enriched the house of Luxembourg, but leaving the empire greatly the worse for his reign.

CHARLES V., emperor, the ablest and most powerful monarch of the 16th century, was born at Ghent, February 24th, 1500. He was the converging point and heir of four great royal lines, which had become united by a series of fortunate matrimonial alliances. His father was Philip of Austria, who being the son of the Emperor Maximilian and of Mary, only daughter and

heir of Charles the Bold, transmitted to him the possession of the Netherlands, and of the hereditary dominions of Austria, as well as a solid claim to the imperial crown of Germany at the next election. His mother was Joanna, second daughter, and finally heiress, of Ferdinand of Aragon and Isabella of Castile, joint rulers of Spain, who handed down to their grandson the united monarchy, increased by the conquest of Granada in 1492, by the addition of the two Sicilies in 1504, by the annexation of the southern part of Navarre in 1512, and by the discovery of the New World. Seldom, if ever, in the history of the world has any one been born to such vast possessions and to such weighty responsibilities. He fell heir to the Netherlands on the death of his father in 1506, to the crown of Spain and Naples on the death of his grandfather Ferdinand in 1516, and to the archdukedom of Austria on the death of his grandfather Maximilian in 1519. Before the future emperor was born, Columbus had been discovering for him territories of unlimited extent and fabulous wealth beyond the pillars of Hercules. When he was only fifteen years of age the first European saw the Pacific Ocean; and while the crown of Charlemagne and Barbarossa was being placed on his head at Aix-la-Chapelle, Magellan was prosecuting the great voyage which was to result in the circumnavigation of the globe, and Cortes was engaged in the arduous conquest of Mexico. Ere he had been twenty years on the throne of Spain, Pizarro had completed the conquest of Peru. This was not all. It must be remembered that two at least of the countries he was destined to rule were approaching the very highest point of their intellectual, moral, and material development. The ingenious and energetic population of the Netherlands were carrying industry to a pitch till that time unexampled in the history of the world, while the vast wealth they accumulated could in the hands of a politic ruler become an almost exhaustless source of revenue. It was the heroic period in the history of Spain, the period of final victory over the Moors, and of the romantic conquest of a new world, when religious and military enthusiasm elevated the national character in such an extraordinary manner; in war, diplomacy, and government the preëminence of the Spaniards was acknowledged and dreaded. In fact, the material wealth of great countries and the genius necessary to form it and to guide it were available to an extent which has seldom been surpassed.

On to 1517, when he went to enter upon the government of Spain, Charles lived in the Netherlands. He was carefully educated, though his tastes attracted him more to the active exercises of the chase and of the tilting ground than to the dry and pedantic learning of the time. William of Croy, Lord of Chièvres, was appointed to superintend his education, while under him Adrian of Utrecht, afterwards Pope by the name of Adrian VI., was the teacher of the young prince. The latter was not able to inspire him with any love for the scholastic learning in which he excelled, while the former did not attempt to lay any constraint upon his natural bent. He took care, however, to instruct him in the knowledge more directly useful to a prince, in the study of history and the science of government, and especially sought to interest him in the practical direction of affairs. If we may judge from the result he was perfectly successful, as his pupil grew up to be a great adept in the arts of government, and to be the active and direct moving power in everything that transpired during his reign. Yet his character was late in developing. His excessive deference to his teachers and the undue place he gave them in the government rendered him very unpopular during his first visit to Spain (1517-19).

In 1519 the news arrived of the death of his grandfather Maximilian, and then of his own election to the imperial crown. The contest between him and Francis I. had excited universal attention in Europe. The crown had been first offered to Frederick the Wise, elector of Saxony, but that prince recommended Charles on the plea that the critical state of the empire, especially on account of the alarming progress of the Turks, required for it a powerful protector. And, indeed, now that Charles had attained to the highest position in Christendom, he found that the vast extent of an empire, consisting of nations geographically disconnected and brought under the same head, not through any real affinity, but by the accident of matrimonial alliances, had only increased the number of his rivals and the many-sided complexity of his duties. Between Charles's dominions in Spain and the Netherlands, holding the duchy of Burgundy, which Charles claimed by hereditary right, and the duchy of Milan, over which he was bound to assert the old imperial claims, angry because of the Spanish conquest of Navarre, and chagrined by his defeat in the contest for the imperial crown, Francis ruled a compact and united kingdom, not capable certainly of matching the vast empire of Charles, yet not easily accessible to attack, and formidable on the battle-field. About the same time that Charles was crowned at Aix-la-Chapelle, the throne of Turkey was ascended by Soliman the Magnificent, who himself the heir of mighty conquests and of well-disciplined armies, carried the Ottoman empire to the very pinnacle of its power (1520-66); his progress through Hungary up to the walls of Vienna was marked by an ever-advancing line of fire and blood; his fleets commanded the Mediterranean, and threatened the coasts of Italy and Spain, while the corsairs of Tunis and Algiers, under the renowned Barbarossa, who was soon to acknowledge his allegiance, infested the seas, and, spreading terror all along the northern shores of the Mediterranean, carried thousands of Christians into slavery.

The Pope was a doubtful and suspicious ally or an open enemy, as the interests or passions of the Holy See seemed to dictate, and Henry of England, aspiring to be the arbiter of Europe, pursued an equally capricious course of vacillation. In Spain itself the discontent of the commons broke into open revolt, while the haughty nobles required to be skilfully managed. Above all, on the very year of the coronation, Martin Luther had burned the papal bull which condemned him at the gate of Wittenberg. No one could yet foresee the extent of the chasm opened up in the Christian world by the heroic defiance thus hurled at its spiritual chief; but it soon became clear that the heart of Germany was with the Augustinian monk, and that many powerful influences, in the empire and out of it, religious, social, and national,—science, culture, patriotism, morality, and piety—were working towards the overthrow of priestly domination. On all sides, then, Charles had difficult work to do. In Italy and Navarre, and on the Flemish frontier, he had to make head against the armies of Francis; in Hungary and in the Mediterranean he had to arrest the progress of the Turks; he required to watch the wayward king of England and the crafty Pope, to manage the haughty susceptibility of Spanish grandes and the boisterous independent spirit of the Flemish cities, to compose the religious troubles, and to stay the growing spirit of revolt against the old state of things.

From his coronation at Aix-la-Chapelle, Charles proceeded to the Diet of Worms, which opened on the 28th of January, 1521. After a council of regency had been appointed, which under the presidency of his brother Ferdinand was to govern during the emperor's

absence, and other business had been disposed of, the religious difficulty was taken up. Though political considerations always prevailed with Charles during his active career, he was a Catholic by conviction, and was by no means disposed to encourage the hopes entertained of him by the liberal party in Germany. Besides, the old traditions of the empire, in which he firmly believed, required that he should support the church. At the same time, the Reformation was too strongly supported to admit of the summary measures most congenial to his character and most suitable to his political position. Luther was therefore heard, and his safe-conduct respected; but at the close of the Diet Charles had the ban of the empire pronounced upon him and his adherents. This edict, however, which had been obtained by unfair means, remained inoperative. The war with Francis which now broke out, and occupied the emperor for eight years, prevented him from obstructing the Reformation. In the mean time, disturbances had been going on in another part of his dominions (1519-21). The discontent of the commons of Castille at the summary proceedings of Ximenes, at the excessive preference given to Flemish officials in the government of Spain, and at the other unconstitutional measures of the new Government, broke into open revolt. Toledo was the first to rise, and the insurgent cause soon became powerful in Castille. Even many of the nobles sympathized with the movement; one of their number, Don John de Padilla, placed himself at the head of it; but divisions among the commons, and their alienation from the nobility, weakened their strength. An army was brought up against them, which defeated Padilla, and took Toledo after a hard siege. Like disturbances took place in Valencia. On his return from Germany, Charles treated the insurgents with great clemency, and wisely attached the nobility to his person; but the old liberties of Castille became little more than a dead letter.

After his return from the Diet of Worms, Charles remained in Spain till 1529, directing the war against Francis. The emperor was upon the whole decidedly victorious. The French were foiled in Navarre, and expelled from Milan and from the whole of Italy. The failure of the imperialists in an invasion of Provence and the siege of Marseilles were compensated by the splendid victory of Pavia, in which the French sustained enormous losses, and Francis himself was made prisoner (1525). The triumph was, indeed, too decisive, as it made Charles oblivious of every chivalrous principle in his treatment of the captive king, and alarmed his allies, Henry of England and Clement VII., into espousing the French cause. Francis nominally accepted, but immediately after his liberation repudiated the humiliating peace of Madrid, and with his allies recommenced the war. Thus Charles lost the fruits of his victory; but he was again successful. The mercenary army of Bourbon plundered Rome, and kept the Pope a prisoner in the castle of San Angelo, while the efforts of Francis to maintain himself in Italy proved a failure. At length the rival monarchs composed their differences for a time at the peace of Cambray (1529), by which Francis renounced his pretensions to Milan, and retained the duchy of Burgundy. The superior generalship of the Spaniards, the deeper and more persevering policy of Charles, and the defection of Bourbon (who, grievously injured at the French court, carried over to the enemies of his country his military skill and a thirst for revenge) had given him the foremost place in Christendom, in reality as well as in name, while the peace left him free for other labors. Leaving Spain under the regency of his beloved queen, Isabella of Portugal, whom he had wedded in 1526, he proceeded to Italy. At Bologna,

where he had an interview with the Pope, he was crowned emperor and king of Italy; and Florence, which had expelled the Medici, was taken after a long siege, deprived of its republican constitution, and placed under a member of that celebrated family. After having arranged the affairs of Italy, the emperor crossed the Tridentine Alps into Germany to attend the Diet which had been summoned to meet at Augsburg (1530). Notwithstanding the Peasants' War, the fanaticism of Anabaptists, and the strenuous, often threatening, opposition of the powers temporal and spiritual, especially of Southern Germany, the Reformation had made marvellous progress during the nine years which had elapsed since the Edict of Worms, and was rapidly overspreading the whole empire. It was clear that if the influence of the church beyond the Alps was not altogether to be lost, the emperor must interpose with the whole weight of his authority. Accordingly, at Augsburg, Charles made every effort to bring about a peaceful arrangement of the religious differences; but he soon found that he had quite mistaken the strength and firmness of the new movement.

The Protestants held resolutely by the confession they had presented; and when Charles proceeded to issue a hostile edict against them, they formed themselves into a league for mutual defence under the leadership of Saxony and Hesse. This was the famous Smalkald League, which from the end of 1530 continued to be the political bulwark of German Protestantism. The league entered into communication with both France and England; but it was from a much stranger quarter deliverance was to come. As at the Diet of Worms it was Francis, so now it was Soliman that averted an armed collision between the young Protestantism and the imperial power. Foiled in his attack on Vienna in 1529, the sultan was again threatening the south-eastern frontiers of Germany with a terrible army. Charles felt it necessary to unite the empire against him, and so at Nuremberg effected a compromise with the Protestants, by which freedom of worship was secured till the calling of a general council. With all enthusiasm they then armed against the Turk. At the head of one of the most splendid armies ever equipped by Christendom Charles for the first time took the field in person. Great deeds were expected at this hostile meeting of the Eastern and the Western worlds; but the sultan, reckoning on the religious quarrels of Germany, did not anticipate that he would have to confront the united forces of the empire, and therefore soon withdrew within his own frontier (1532). Not being able to follow the enemy through the wasted kingdom of Hungary, the emperor returned through Italy to Spain. His next expedition was against Tunis, now the stronghold of the great pirate Barbarossa. The emperor defeated Barbarossa, took the city, and released thousands of Christian slaves, who, returning to Europe, spread abroad the fame of their generous deliverers (1535). The same year war was resumed with Francis, who formed an alliance with the Turks, and invaded the territory of the duke of Savoy. Charles failed completely in an invasion of Provence, and the war ended without any important result by the truce of Nice.

Next year the emperor lost his wife Isabella, to whom he was deeply attached. Towards the end of the year (1539), when a revolt of the city of Ghent required his presence in Flanders, Charles passed through Paris on the special invitation of the French king, giving to Europe, as was thought, a noble example of chivalrous confidence and forgetfulness of past enmities. The emperor was too much occupied with present emergencies to introduce a systematic despotism into the Nether-

lands; but when the privileges of the cities came into conflict with his imperial plans they were little respected. The most cruel edicts had been issued against Lutheranism and a bloody persecution carried on. But to Charles the Netherlands were above all things an inexhaustible source of revenue, from which he drew the supplies for his many wars. They paid annually twice as much as Spain and the Indies put together, and were continually called upon for extraordinary contributions. The great city of Ghent, his own birthplace, had lately refused to contribute, and even entered into communication with Francis, who betrayed it to Charles. The emperor entered the city with a numerous army and an imposing retinue, caused the ringleaders to be executed, annulled the constitution of the city, and placed it entirely under the government of persons nominated by himself (1540). In the autumn of next year Charles made another expedition against the corsairs of North Africa, who had now made Algiers their great stronghold and the centre of their nefarious power. But he was unsuccessful; a tremendous tempest so disabled the army and injured the fleet that he was obliged to return before he had in the least accomplished the object of the expedition. He had unwisely persisted in it during a highly unfavorable season; but the bravery with which he exposed himself to danger and hardship of every kind to some extent atoned for his rashness. The reverses sustained by the emperor at Algiers encouraged the most persevering of his enemies, Francis, to renew the war in alliance with the Turks. Consequently, Charles was once more obliged on every side to make head against his old foes, against the French armies in Piedmont and on the Spanish and Flemish frontiers, against the Turkish armies in Hungary, and against a junction of the French and Turkish fleets in the Mediterranean. At length a fresh compromise with the Protestant princes enabled him to invade Champagne with a powerful German army, which so alarmed the French capital that Francis found it expedient to conclude the peace of Crespy (1544). This was the last war of Charles with his French rival. The emperor had all along maintained his superiority over the king, but except that the French had been expelled from Italy, they remained, territorially, as they had been at the beginning.

This peace with Francis, and a truce subsequently concluded with Soliman, now left Charles free to grapple with his last and most difficult labor, the suppression of the Reformation. The religious question always lay very near to the heart of the emperor. But during the first twenty-five years of his reign, it had only been at short and broken intervals, left him by his wars and other multiform relations with Francis, Henry, the Pope, and the Turk, that he had been able to take it in hand. Scarcely had he been able to enter on some deliberate method of dealing with it when one or other of those rivals or suspicious friends crossed his path, and called his attention elsewhere. And now, when he could devote seven years of almost uninterrupted leisure to the work, and could concentrate the entire strength of his empire on the execution of it, he was destined to discover that the Reformation had grown too strong to be arrested even by his imperial will. Its progress, great as it had been from the Diet at Worms to that of Augsburg, had been far greater from the Diet of Augsburg to the period at which we have arrived. At Augsburg the elector of Saxony and Philip of Hesse were the only considerable princes that supported the Reformation. By this time Würtemberg, Brandenburg, the dukedom of Saxony, and the Palatinate of the Rhine had declared for it. Northern Germany was almost entirely Protestant, whilst in Southern Germany the imperial cities, and even to some extent the nobility of the Austrian hered-

itary states, were in favor of it. Bohemia was strongly inclined in the same direction; and towards the West the orthodoxy of the Netherlands was threatened by the duke of Cleves, who was going to enter the Smalkland League, when his plans were cut short by the emperor, and still more so by Hermann, archbishop of Cologne, who was engaged in inaugurating a moderate reformation of his province under the advice of Bucer and Melancthon. Thus had the new movement profited by the distractions of an emperor who wished to arrest it. Now it was clearly time for the most strenuous and comprehensive effort. It was to be expected of the politic nature of Charles that he would not have recourse to extreme measures till all means of accommodation had been exhausted. Accordingly, in 1541, at Ratisbon, a great religious conference had been held by some of the most moderate theologians on either side. No little harmony of opinion had been arrived at, but they differed as to transubstantiation and the powers of the church. The more decided heads of both parties were afraid that compromise was being carried too far, and the result was that they separated without any common platform being secured. Towards the end of 1545 another of the methods all along proposed for the arrangement of the religious difficulty, and constantly urged on the Pope by the emperor, was at length to be tried. But the Protestants were resolved to have nothing to do with a so-called general council which was composed almost entirely of Italians and Spaniards, where the Pope and the old party were absolutely predominant, and where, consequently the Church of Germany had no chance of a fair representation or even of a fair hearing.

The calling of the Council of Trent, therefore, had the sole effect of widening the chasm between the old and the new; and the course its deliberations were to take had the same result in signaling the contradiction between the Catholic and the Protestant point of view. Perceiving that milder methods were of no avail, Charles now made preparations to compel the submission of the Protestant princes. The dissensions among them greatly facilitated his plans. Maurice, duke of Saxony, always at feud with his kinsman the elector, was ready, with reasonable prospect of self-aggrandizement, to take the imperial side, and the elector of Brandenburg took no active part in the struggle, so that Electoral Saxony, Hesse, Würtemberg, and the imperial cities alone were to be reckoned with. The counsel of the great general Schärtlin, who commanded the troops of the cities, to fall upon Charles at Ratisbon before his forces were assembled, and then to seize the passes of Tyrol, so as to break the communication between Italy and the imperial camp, was set aside by the hesitating and over-scrupulous leaders of the Protestant party. Accordingly, Charles was allowed to concentrate his troops and take the offensive. Maurice thereupon declared himself, and, invading the territories of Electoral Saxony, compelled the elector to withdraw from the Protestant camp, which consequently soon broke up, leaving the emperor to have his own way in South Germany, and to suppress the Reformation in the province of Cologne. Thus, disastrously for the Protestants, ended the campaign of 1546, the result of their own indecision, as their forces were superior to those of the emperor.

In the mean time, the Saxon elector had been chastising Maurice for his treacherous invasion of the electorate. In the spring of 1547 the emperor, hastening to assist his ally, concentrated his forces at Eger on the Bohemian frontier, overtook the electoral forces at Mühlberg on the Elbe, defeated them easily, and took the elector prisoner. He was obliged to submit to a humiliating arrangement, by which he resigned his territory and the electoral hat to his enemy Maurice.

Shortly after, Philip of Hesse was likewise compelled to yield, and was detained a prisoner by the emperor, whose dishonorable conduct on this occasion excited the indignation of his Protestant allies, especially of Maurice, who was son-in-law to the landgrave. In a little time Protestantism seemed to be at the feet of the emperor. The city of Magdeburg was the only important seat of resistance remaining. But while the emperor had been beating down the enemies of the church on the field of battle, her representatives at Trent were proceeding in such a way as to render a permanent settlement of the question impossible. The politic Charles was anxious to concede certain points to the Protestants, so as to secure peace while still maintaining the rights of the church.

The conclusions arrived at by the council did not admit of compromise; and to make matters worse, the Pope, alarmed at the victorious attitude of Charles, removed it from Trent to Bologna. Elated by his victories to an extent that was not to be expected of an old and experienced statesman, the emperor now adopted some very doubtful measures. Under his auspices, the Augsburg Interim was framed — an attempt to supply a common religious platform for all parties in the empire, and thus by his own imperial authority put an end to the schism. But it pleased neither party, for the Catholics rejected it, and the Protestants accorded it only a limited and enforced obedience. Another plan of the emperor, to induce the German electors to cancel the election of his brother Ferdinand as king of the Romans and to choose his own son Philip instead, also failed. Thus the ambitious dream of Charles to transmit all his own power to his son, and if possible make it hereditary in his family, could not be realized. Meanwhile, all unknown to himself, a plot was maturing by which he was to be hurled from a position of splendid triumph into the bitterest reverses of his life. The profound and skilful Maurice Saxony, finding that he had got from the emperor all that was to be expected, and perceiving how deeply he had outraged the national and religious sentiment of Germany, resolved to seize the advantage given him by the high-handed and oppressive measures of his ally in order to retrieve his own lost credit. Accordingly a combination of princes was formed with the greatest secrecy, and an alliance concluded with Henry II. of France. While the French king, marching eastward as the "Protector of the Liberties of Germany," seized Toul, Verdun, and Metz, and threatened Strasburg, and the Turks renewed the war on the Austrian frontier, Maurice and his confederates advanced suddenly into South Germany, and surprised the emperor at Innsbruck, whence, saved from capture by a mutiny among the German landsknechts, he fled, sick of gout, over the Tyrolean Alps into Carinthia. Weary of the religious divisions of Germany, Charles left to his brother Ferdinand the task of arranging a peace, first at Passau (1552), and finally at Augsburg (1555). But he was doomed ere long to sustain another severe reverse. While renouncing the task of arranging the internal affairs of Germany, he had chosen for himself the duty of chastising her foreign enemies, and winning back an important possession. At the head of a splendid army of 60,000 men, he besieged Metz from the end of October 1552 to the beginning of January; but all his efforts to retake the city availed nothing against the skill of Guise, and the bravery of the French nobles, who had thrown themselves into the city in great numbers. After suffering great losses he was obliged to retreat, and Metz was for three centuries lost to the German empire. Soon after, in a very different quarter, the policy of Charles gained a great triumph, which likewise proved illusory.

The frequent changes in the direction of English politics had always been a subject of deep interest to him, and had to some extent affected his own course, though only in a secondary way. Now, however, on the accession of Mary, there was real ground for the hope that England might be drawn into the closest connection with his policy, and most intimately interested in the great struggle against the new movement, which had gradually become the supreme question in European politics. Mary had already been betrothed to Charles, and expressed her willingness to become his second empress; but he transferred the state duty of marrying Mary to his son Philip, who accordingly did so in 1554. The presence of Philip in England contributed greatly to the restoration of Catholicism in the country, and Mary was very glad to fall in with the general policy of Charles. An heir only was wanting to the stability of the union, an heir, too, who was destined by the marriage-treaty to rule over England and the possessions of the house of Burgundy, and his birth was expected with many prayers in the Catholic world, and with great anxiety on the part of Charles. Happily for England, the hopes of Mary were not realized. The English alliance continued, but its insecurity was only too apparent.

Long before the period at which we have arrived, Charles had entertained the idea of relinquishing the throne in order to devote the remainder of his life to quiet retirement and preparation for another world. With a feeling of this kind it had been proposed by him and his wife Isabella, who died in 1539, to withdraw, he into a monastery, she into some neighboring nunnery, and there spend the evening of their days in religious exercises. On his return from the unhappy expedition against Algiers his suite remarked the impression made on him by the quiet simplicity of the monastic life. In 1542, the secret had been confided to Francisco Borja, afterwards famous in the Society of Jesus. Now when he had been thwarted in his dearest schemes, obliged to renounce all pretension to control the religious movement in Germany, and foiled in a great attempt to recover an imperial city treacherously seized by his bitterest foes, and when the last great effort of his statesmanship depended on the life of a sickly woman, it is no wonder that he proceeded to carry his plan into execution. But beyond a doubt the great reason for finally adopting the resolution to abdicate was his feeble health. The vigor which in his younger days had fitted him so well for the chase, the tournament, and the battle-field, was already completely undermined by incessant labor and anxiety, by repeated attacks of gout, and, it must be added, by his extraordinary excess at table. In 1554 he transferred the crown of Naples to his son Philip, in order that Philip might marry Mary of England on equal terms. Next year, on the 25th of October, the States of the Netherlands were assembled at Brussels to receive a formal abdication of those provinces. Supported by a crutch on the right hand, the left leaning on the shoulder of the young prince of Orange, afterwards renowned as the liberator of Holland, Charles recounted the many journeys he had made and the long and arduous labors he had undergone in the service of his people; he intimated that the state of his health now required that he should transfer the cares of government to his young son, whom he introduced to the assembly; and, exhorting them to adhere steadfastly to the Catholic faith, requested their forgiveness of all the errors committed during his reign. The assembly, full of the ancient spirit of reverent loyalty, and struck by the marvellous spectacle of the highest earthly power voluntarily divesting itself of its majesty and descending into obscurity before the natural time, burst

into tears and sobs. The emperor himself, as he sunk exhausted in his chair, wept like a child. The same year Charles intimated to his brother Ferdinand his determination to resign the imperial dignity; but owing to the tedious formalities of the empire, and the objections of Ferdinand, it was not till 1558 that the process of abdication was completed. In the beginning of 1556 he formally laid down the crown of Spain.

After he had thus relieved himself of the responsibilities of government, Charles sailed from Flushing on the 17th September for a climate better suited to his broken health. He landed at Laredo in Spain on the 28th, and in the beginning of February of next year finally settled at Yuste, a Hieronymite monastery in the north of Estremadura. It stood in a pleasant and genial valley, protected from the north wind by a range of mountains. He had selected the spot some time before, and had caused a house to be built for his reception adjoining the monastery. Here he stayed till his death, a period of one year and eight months nearly. His life in retirement, so erroneously painted by Robertson, has been described with great minuteness by many recent historians of great ability. The romance in which it has been enveloped has been removed, and his character appears in unborrowed and somewhat prosaic reality. It is true that he devoted much of his time to religious exercises; for it was not to be expected that a prince, who had not allowed a single day to pass since the age of twenty-one without spending a portion of it in inward prayer, would intermit the practice in his declining years, and during a retreat chosen for the purpose. He spent much of his leisure in gratifying his mechanical tastes, but so far was he from learning the principle of toleration from the impossibility of making two watches go exactly alike, that he exhorted his children, in the most urgent manner, to destroy heresy with fire and sword. He still delighted in the converse of learned and experienced men, but instead of entertaining them familiarly at table he maintained the stately Castilian etiquette of dining alone, only once deigning to partake of the meal of the friars, whom he continued to respect as much as ever. The simplicity of his table especially is a mere imagination. So long as he was tolerably well he kept his dependents in continual anxiety to have it well furnished with those pernicious dainties which had contributed to ruin his health, and this was only equalled by the anxiety of his medical and other advisers, when excess had brought about its natural consequences.

His retirement certainly delivered him from the necessity of moving in a prescribed line of anxious duty and responsibility, but his own sympathy with public affairs, and the emergencies in which Philip found himself in consequence of a new combination of the French, the Turks, and the Pope, obliged him to come forward with his advice, which was always attended to with the utmost deference, and in financial matters, with his active help. The couriers despatched to Yuste found him keenly alive to all the vicissitudes of good and evil fortune which his empire was still destined to experience. The brilliant, but somewhat barren victories of St. Quentin and Gravelines, the extraordinary peace concluded by Philip with the Pope, the loss of Calais and Thionville, the advance of the Turkish fleet to the coast of Spain, and the much-desired but never to-be-fulfilled hope of Mary of England, that God might give her a child for the good of the church—all these matters interested him as much as when he was the moving spirit of European politics. The soft air of Yuste and the easy way of life he led had for some time a most beneficial effect on his health. He became stronger than he had been. But his gout, and above all his injudicious diet, still rendered him an invalid. He could not ride,

nor could he walk much, but was usually carried about in a chair, and delighted to enjoy the warm air under the shade of the trees of the monastery. At length, during the month of August, 1558, serious symptoms began to show themselves, and it was remarked that his mind dwelt more than ever on the religious ceremonies prescribed by the church for the souls of the dead. The Hieronymite chroniclers relate that he even caused his own obsequies to be performed before his death. There are a good many difficulties in the way of accepting their narrative; but Sir W. Stirling Maxwell and Prescott are both disposed to believe that his funeral service was in some form celebrated during his life. The same day, the 30th August, he felt considerably worse. In a little time his ailment took the form of fever, of which he expired at two o'clock in the morning of the 21st September (1558). He died the death of a good Catholic, earnestly commending his soul to God according to all the forms observed by the church. He was interred in the monastery; but after the completion of the Escorial by Philip, his remains were removed thither, where they were again laid to rest by the side of his dearly-beloved and much-regretted Isabella.

CHARLES VI., emperor, was the second son of Leopold I. As the only male representative of the house of Hapsburg, he claimed the throne of Spain, which was left by Charles II. to Philip, duke of Anjou, grandson of Louis XIV.; and in order to prevent the predominance of the house of Bourbon, England, Holland, Prussia, Germany, and Portugal gave him their support. In 1703 he was proclaimed at Vienna; and having, after a visit to England, invaded Spain, with the assistance of an English fleet under Peterborough and an English land-force under the earl of Galway, he was proclaimed king in Madrid in 1706. He himself remained at Barcelona; and the war continued with varying success till the death of his brother, the Emperor Joseph I., in 1711, produced the most important changes in the policy of the allied European powers. They became as much afraid of the supremacy of the house of Hapsburg as they had formerly been of that of Bourbon; and in 1713, by the treaty of Utrecht, they made peace with France. In the next year Charles was obliged to follow their example, and by the treaty of Rastadt he gave up all to Philip except the Spanish possessions in the Netherlands and Italy. In 1715 Charles undertook the defence of Venice against the Turks; his general, Prince Eugene, gained some considerable success, including the victory of Belgrade; and added parts of Servia, Slavonia, Bosna, and Wallachia to the empire. He next engaged in meeting an attack on his Italian territory made by Spain, whose policy was then directed to Alberoni; and with the assistance of England, France, and Holland, he was speedily successful. After this for several years all his efforts were spent in endeavoring to obtain the recognition by the European powers of his Pragmatic Sanction of 1713, which settled the succession on his daughter, Maria Theresa, and her heirs. By ceding Parma and Piacenza, Charles purchased the favor of Spain, and he afterwards in a similar manner acquired the alliance of Russia and Prussia. But England, France, Denmark, and Holland united to oppose him; and it was only at the cost of considerable sacrifices that he at length, in a conference held at Vienna in 1731, obtained their recognition of his scheme. One of the promises which he then made was to secure the succession to the crown of Poland to the son of the reigning king; and on the death of the latter he was consequently involved in a war with France, Spain, and Sardinia, which supported a rival claimant. In this struggle he lost Milan, Lor-

raine, and most of Lombardy, which were seized by the French, together with the two Sicilies, which were conquered by the Spaniards. His last war, against the Turks, was equally unfortunate. He died in 1740, leaving the empire considerably weakened by his reign.

CHARLES VII., emperor, also known by the name of Charles Albert, was the son of Maximilian Emmanuel, elector of Bavaria. He was taken from home while a child by the Emperor Joseph I., who had outlawed his father and seized Bavaria, and he was not liberated till the conclusion of the treaty of Rastadt in 1714. He commanded against the Turks in the war which the emperor Charles VI. undertook in order to protect the Venetians. In 1722 he obtained in marriage the second daughter of the late Emperor Joseph, after renouncing all claims to the imperial crown. But when he succeeded to the electorate of Bavaria (1726), he refused to recognize the Pragmatic Sanction; and on the death of Charles VI. he gained the alliance of France and Spain, proclaimed himself king of Bohemia, and, having obtained his own unanimous election, was crowned emperor at Frankfort in 1742. The Hungarians, however, having espoused the cause of Maria Theresa, she was enabled to occupy Upper Austria and Bohemia, and Charles was forced to retire. In the next year his general, Seckendorf, met with some success, and in 1744 Frederick of Prussia invaded Bohemia in his interest. Charles died at Munich in 1745.

CHARLES I. of Spain. See CHARLES V., emperor.

CHARLES II., king of Spain, son of Philip IV., was only four years old at the death of his father. The regency was left in the hands of the queen, Anna Maria of Austria. She appointed a council at the head of which she placed Niedhard, her confessor, whom she also made grand inquisitor. But Don John, the illegitimate son of the late king, having gained great popularity by his military successes, marched on Madrid, and forced her to dismiss Niedhard, and give to himself the vice-royalty of Aragon. An unsuccessful war with France, and the loss of Sicily further weakened her power; and in 1675 Charles assumed the government, and took Don John as his chief adviser. Still Spain continued to suffer in the great European contest; and in 1678 she was forced, in the treaty of Nimeguen, to cede Franche-Comté and several considerable towns in the Low Countries to France. In the next year she sustained another serious loss in the death of her ablest minister, Don John. Immediately after the treaty of Nimeguen, Charles espoused Louisa of Orleans, a niece of Louis XIV., who for the next eleven years maintained harmony between Spain and France. The queen-mother now left the retirement of the convent in which she had been placed, and once more, amid the empty folly of the king and the court, assumed considerable authority. After the death of Louisa, Charles married Anne, a sister of the Emperor Leopold I.; and in 1694 he joined the country of his wife and of his mother in declaring war against France. But he effected nothing, and the French troops had reached Barcelona, when Spain was saved by the treaty of Ryswick (1697). As the king was childless, negotiations concerning the succession occupied the last few years of his life, and after leaning for a long time to the side of Austria, at last, a month before his death in 1700, greatly through the influence of the Pope, he left the crown to Philip Bourbon, grandson of Louis XIV., who succeeded as Philip V.

CHARLES III., king of Spain, was the second son of Philip V. Parma, Piacenza, and Tuscany, having fallen into the hands of Spain, were bestowed upon Charles, who at the age of fifteen was furnished with an

army, and sent to take possession of his principality. At eighteen he conquered the two Sicilies, and the emperor was obliged to recognize him as king. In 1759, by the death of his brother, Charles succeeded to the throne of his native country. His reign was a useful one; for he was a man of ability and of liberal temper, and he was served by such ministers as Aranda, Grimaldi, and Florida Blanca. The administration of the finances was reformed, and a bank was instituted at the capital. The Jesuits were banished, and an attempt, which was not, however, successful, was made to bring the Inquisition under the power of the civil government. Something was done to abolish brigandage; and on two occasions Charles attempted to repress the piracy of the Algerines; he interested himself greatly in the development of commerce, science, and art; and, lastly, he did much to strengthen the army and navy. The wars, however, which he carried on with England, in alliance with the French, brought him little success. In 1763 he ceded Florida to the English in exchange for Cuba. He joined France in sending assistance to the United States during the War of Independence; and in the peace which was concluded after that war, he recovered Florida, and also gained Minorca. But his attack on Gibraltar was unsuccessful, and the English refused to treat for its restoration. Charles died at Madrid in 1788, after a reign of twenty-nine years. See the *Elogio* of Cabarrus, and the accounts of the reign by Beccatini and Roy.

CHARLES IV., king of Spain, was the son of Charles III., whom he succeeded in 1788. He was married while very young to his cousin, Maria Louisa of Parma, who soon acquired the greatest influence over him. His most remarkable minister was Manuel Godoy, a good-looking guardsman, who gained the friendship of both the queen and her husband, rose from the ranks to the position of lieutenant-general, and was made duke of Alcudia, and minister of foreign affairs. In 1795 Godoy concluded a treaty of peace with the French Republic at Basel, after an unsuccessful attempt by the king to aid his relative, Louis XVI. Soon after the peace an offensive and defensive alliance was entered into with France; and Spain was thus involved in a short war with Portugal and a longer struggle with England, during which Nelson shattered the Spanish fleet at the battle of Trafalgar (1805). In 1807 Charles made a secret treaty with Napoleon, according to which Portugal was to be seized by the French and Spaniards, and the greater part divided between Godoy and the queen of Etruria, and Charles was to assume the title of emperor of America. At the same time 16,000 Spanish troops were sent to assist the French in Denmark. Meanwhile Napoleon also carried on intrigues with Don Ferdinand, the heir to the throne, who was soon after discovered in a plot to assassinate his father. Though pardoned, Ferdinand continued to do all that he could to arouse ill feeling against the court; and in 1808 Charles was so alarmed by disturbances in Madrid, that he abdicated in his favor. He declared almost immediately that the act was not voluntary; but the matter was decided by a meeting with Napoleon at Bayonne. Urged by Godoy, who was moved by his fear of Ferdinand, and also by the queen, Charles surrendered the crown to Napoleon, who gave him a pension of 6,000,000 francs, with the castle and grounds of Chambord; and from that time he lived in retirement with his wife and the favorite, refusing to return to the throne, even when he might have done so with safety on account of the great unpopularity of his son. He died at Rome, soon after the decease of his wife, in 1819.

CHARLES IX., king of Sweden, was the fourth son of Gustavus Vasa. His nephew, Sigismund, king of

Poland, who inherited the crown in 1592, being a Roman Catholic, Charles was appointed to direct the government, till Sigismund signed a decree establishing Lutheranism as the religion of Sweden. There was also a general feeling against the occupation of the throne of Sweden by a Polish king, and, after several fruitless attempts at accommodation, Sigismund was deposed and Charles elected king in 1604. He carried on a vigorous war with Poland, Russia, and Denmark with varying success; and at the age of sixty he challenged (though without result) Christian IV., the king of the last-named country, to single combat. Many of his domestic measures were very beneficial. He founded the university of Gothenburg, and otherwise furthered the spread of education; and he drew up a new code of laws. He left a rhymed chronicle, and a number of letters addressed to Henry IV. of France and others, on the subject of the war with Poland, which were printed in German at Amsterdam in 1608. He died in 1611.

CHARLES GUSTAVUS X., king of Sweden, was the son of John Casimir, Elector Palatine of the Rhine, and of Catherine, daughter of Charles IX. of Sweden. He studied at Upsala, and traveled in France and Germany, took part in the Thirty Years' War, and fought at Leipsic and elsewhere. On his return to Sweden he sought the hand of his eccentric cousin, Queen Christina, whom he professed to love sincerely. He was rejected; but in 1654 she voluntarily abdicated the throne, and was succeeded by him. He had now an opportunity of gratifying his passion for war. In 1655 he overran Poland, on the pretext that the king had protested against his accession and desired to supplant him. The kingdom of Poland, and after that the dukedom of Prussia, were compelled to swear allegiance to him, and Charles next seized the continental territory of Denmark. He proposed to Holland and England a plan for dividing Denmark among the three nations, but Cromwell scornfully refused to share in the robbery. Charles was still fighting against Denmark when he died at Gothenburg (1660) in his 38th year.

CHARLES XI., king of Sweden was 5 years old at the death of his father, Charles X., and was left under the regency of his mother and of a council. Brought up without care, he arrived at manhood unable even to read. In 1672 he assumed the government, and, under the influence of France, was speedily engaged in the invasion of the electorate of Brandenburg. The elector was assisted by Denmark and Holland; and Charles's army at first met with serious reverses; but afterwards, taking the command in person, he won several battles, including those of Lund and Landskrona; and in 1679 peace was signed. Charles now devoted his energy to establish the absolute independence of the kingly authority. He diminished the number of senators, and made them mere royal councillors; he reunited to the Crown all the lands which had been divorced from it since 1609; and in December, 1682, the States were induced to declare that the king was responsible for the use of his authority to none but God, that he was not bound by forms of government, and that he need only seek the consent of the senate at his own pleasure. The power thus gained was creditably used for purposes of government. Charles paid the public debts, published annual accounts of the finances, traveled through the country that he might be personally acquainted with the needs and circumstances of the people, defended them from the tyranny of the nobles, established a strong and just legal administration, and commenced the drawing up of a general code. He also added largely to the territory of the kingdom. Under his reign no religion was tolerated but Lutheran-

ism; and the king often showed himself stern and rough. He died at Stockholm in 1697.

CHARLES XII., king of Sweden, was born at Stockholm on June 27, 1682. He received an excellent education, and was able to speak German, French, and Latin fluently. In the spring of 1697 his father, Charles XI., died, and the prince, then only in his fifteenth year, was declared of age by the States-General and invested with the royal authority. As might have been expected, the boy-king showed himself to be little disposed for state affairs. His time was divided between study and amusement; now he was poring over the exploits of Alexander in the pages of Quintus Curtius, now spending whole hours in gymnastic exercises, or joining a hunting party in the pursuit of the bear; and thus he was rapidly developing the iron strength of constitution which he displayed in his subsequent campaigns. At this juncture Fredrick IV., king of Denmark, conceived the idea of wresting the crown from the young king, and adding Sweden to his possessions in the Scandinavian peninsula, and Augustus II., king of Poland and elector of Saxony, and the czar, Peter the Great, agreed to second his enterprise by seizing the continental provinces of Sweden. The Danes struck the first blow by invading the territories of Holstein Gottorp, and the duke, who had married the sister of Charles, fled to Stockholm and begged for assistance to recover his states. Charles proposed immediate operations against Denmark, confident in his own prowess and in promises of substantial aid received from the court of St. James, for William of Orange saw in Sweden a valuable ally for his continental policy, and was resolved not to allow the balance of power in the north to be destroyed by the triple alliance. Sir George Rooke, with an Anglo-Dutch squadron, formed a junction with the Swedish fleet, and at the head of fifty-four sail of the line swept the Baltic, drove the Danish fleet into Copenhagen, and bombarded the city, doing, however, little damage. Meanwhile Charles had landed in Zealand with a Swedish army, leading his troops to the shore in person, and wading through the water up to his chin in his eagerness to land. The Danes, inferior in numbers, retired before him, and Frederick seeing his capital threatened with a siege by land and sea, abandoned the triple alliance, and sued for peace, leaving Charles free to turn his arms against Russia and Poland.

From this campaign we may date Charles's assumption of those Spartan manners which distinguished him for the rest of the life. He gave up the use of wine; at night he slept upon his cloak spread upon the floor of his room or on the ground in the open air. His dress was of the plainest, his whole wardrobe consisting of a suit of blue cloth with copper buttons. He seemed to care for no pleasure or amusement; he had an amount of endurance which defied fatigue, and he was alike insensible to the heat of summer and the almost arctic cold of a northern winter. Hardy, brave to the extent of recklessness, capable of inspiring in his followers personal devotion to himself, and withal astute and sagacious in council, he was the very model of a soldier king. Yet in the end Sweden reaped no advantage even from his victories. He had left Stockholm to defend the country from a pressing danger, but once he had tasted the pleasures of military success, he allowed himself to be allured onward to a career of conquest and he never saw his capital again.

When Frederick sued for peace, Peter the Great was threatening Narva and the Swedish province of Livonia on the Gulf of Finland, while Augustus II., elector of Saxony and king of Poland, was besieging Riga, then a Swedish town. Charles disembarked in Livonia with 12,000 men. The Russian army, said to have been 50,-

000 strong, lay before Narva in an entrenched camp. With 10,000 of the splendidly disciplined infantry of Sweden, Charles attacked them there on November 30, 1700. In a quarter of an hour the camp was stormed, and the Russian army, which must have been largely composed of raw troops, was completely routed and dispersed. Turning southward, Charles marched against the Saxons and the Poles, defeated them on the banks of the Dwina, and raised the siege of Riga. He might now have dictated a peace which would have given Sweden an undisputed pre-eminence in Northern Europe. But his ambition was aroused. Augustus was by no means a popular king, and while continuing the war against him, Charles intrigued with the party adverse to him in Poland. The Saxon army of Augustus was defeated in the battle of Clissow (1703), and Poland was occupied by the victorious Swedes. Radziejowski, the cardinal primate, declared the throne vacant, and under the influence of Charles, the Diet conferred the crown upon his friend, Stanislas Leszczynski, the young palatine of Posnania. But even now Charles would not sheathe the sword. He carried the war into Saxony, overran the hereditary states of Augustus, and in 1706 dictated to him the peace of Altranstadt, by which Augustus resigned all claim to the throne of Poland, and further agreed to give up to the conqueror John Reginald Patkul, the ambassador of the czar at Dresden. Patkul was by birth a Livonian, and therefore a subject of Sweden, but he had transferred his allegiance to Russia, and it was said that he was the real author of the league between Russia, Poland, and Denmark. It was very doubtful if he could have been adjudged guilty of treason, and, in any case, his position as ambassador ought to have protected him; but Charles thought only of vengeance, and after the form of a trial had been gone through, Patkul was condemned to be broken on the wheel, and the cruel sentence was executed, the king refusing to mitigate it in the least degree.

The whole affair has left an indelible blot upon his memory, and it shows how much of vindictive passion was concealed under a perfectly impassive exterior. Even had Charles been willing now to bring the war to a close, the execution of his ambassador would not have allowed the czar to accept a peace. Twice he invaded Poland, but each time he had to retire before the Swedes. By the autumn of 1707 Charles had collected 43,000 men in Saxony; a reserve of 20,000 under General Levenhaupt was in Poland, and a third army, 15,000 strong, was upon the frontier of Finland. In the following January, in the midst of the ice and snow, he suddenly broke up his camp, marched against the Russians, surprised and almost captured the czar at Grodno, and then continued his advance, driving the Russians before him, and defeating them in numerous encounters. He had forced the Beresina and won a battle near Smolensko, and the way to Moscow lay almost open before him, when, to the surprise of his army, he turned southward to the district of the Ukraine. The fact was that he had a secret treaty of alliance with the hetmann of the Cossacks of the Ukraine, Mazeppa, whose romantic story has been made so famous by the verse of Byron. The hetmann had promised to join the Swedes with 30,000 Cossacks and abundant supplies. But when, after a difficult march, Charles reached the Ukraine, he found that the Russians had discovered and frustrated Mazeppa's design, and the hetmann brought him only a handful of followers. Nor was this his only disappointment. A reinforcement of 15,000 men under Levenhaupt was intercepted and cut to pieces by the czar, and after wasting the summer in a desultory warfare, the Swedes found themselves overtaken by the severe winter of 1708-1709 in the midst of an enemy's country. Still

Charles would not abandon the idea of reaching Moscow. Though his army was reduced by cold and privations to 23,000 men, he maintained himself till spring, and then besieged the fortress of Pultowa. The place held out until July, when the czar approached at the head of a large army. On the 7th Charles was wounded in reconnoitring the enemy. In the famous battle which took place the next day he had to be carried in a litter amongst his staff. The battle ended in the complete defeat of the Swedes. Charles, leaving most of his officers prisoners in the hands of the enemy, fled with a few attendants across the Bug into the Turkish territories, and was hospitably received by the Turks at Bender on the Dniester.

Charles resided three years in Turkey, during all which time his expenses, and those of his numerous household, were paid by the Turkish Government, in accordance with a very liberal interpretation of the Eastern law of hospitality. From the day of his arrival at Bender his constant aim was to involve Russia and Turkey in war. He succeeded in producing an outbreak of hostilities; the Turks out-manœuvred and surrounded Peter and his army on the banks of the Pruth, and the czar would have been either killed or taken had not his wife Catherine, by her energy and courage, obtained an armistice for him on favorable terms from the grand vizier. Removing his residence to Vranitza, where his followers formed a little camp around the strongly-built house in which he lived, Charles continued his intrigues to produce another war with Russia, and though once on the point of success, he eventually failed, and the counter-intrigues of the czar began to produce an effect at Constantinople. At this time Charles occupied a very humiliating position, short of money, afraid to leave Turkey for fear of falling into an enemy's hands, dreading at any moment to be betrayed by the Turks, and knowing that all his conquests had been useless, and that the Swedish provinces were being invaded by Danes, Saxons, Poles, and Russians. The Porte displayed a singular amount of patience in treating with him, but at length it became evident that so long as Charles felt himself safe among his Polish and Swedish guards at Vranitza he would not leave Turkey. A fetva of the Sheikh-ul-Islam declared that the rights of hospitality would not now be violated by his forcible removal, and Ismaël Pacha, the governor of the district, received orders to seize him dead or alive.

Charles having persistently refused to come to terms, Ismaël, with several thousand janissaries and Tartars, surprised the little camp and took his 300 guards prisoners; he then attacked the house held by Charles and forty of his suite. The king defended himself desperately; the house was set on fire over his head, and he was retiring, driven out by the flames, when his spurs became entangled, and he fell and was secured and disarmed by the janissaries. His eyebrows were singed and his clothes torn and stained with blood. For awhile he was kept in honorable imprisonment, then he was allowed to reside with a few attendants at Demotica, where he still spoke of departing escorted by a Turkish army, and feigned illness in order to gain time for negotiations, which in the end led to nothing. The king of Prussia was desirous of forming a league with him against the czar, and would have secured for him an honorable return to his states, the one condition being that Stanislas should abdicate and Augustus II. be recognized as king of Poland. Stanislas was quite willing to abandon his doubtful claim to the throne, but Charles with characteristic obstinacy refused to listen to the proposal. "If," he said, "my friend Stanislas will not be king, I can find some one else to take his place." At length he saw that there was no chance of the Porte granting his de-

mands, and sending his respectful adieux to Constantinople, he set out suddenly with only two attendants, and travelling unceasingly, riding by day and sleeping in a carriage or cart at night, he passed through the Austrian territories, Bavaria, Westphalia, and Mecklenburg, and thus avoiding the districts held by his enemies, reached his own town of Stralsund, in Swedish Pomerania, late at night, on November 21, 1714, after a journey of sixteen days. He announced himself as a Swedish officer charged with important despatches from Bender. The governor received him at once in his bedroom, and asking for news of the king, recognized Charles by the sound of his voice when he replied, and the tidings of his arrival soon spread through the city, which was illuminated for the rest of the night. The return of Charles only drew more closely the alliance between the powers which had been plotting in his absence the dismemberment of Sweden. Stralsund was besieged by a combined army of Saxons, Danes, Prussians, and Russians. Charles made a protracted defence, but on December 23, 1715, the place was forced to capitulate, the king embarking immediately before the surrender, and taking up his residence at Lund in Scania.

Arrived in Sweden, he took measures to protect the coasts of the kingdom against a descent of his enemies, and with a small army invaded Norway in March, 1716; he overran a large part of the country, but was forced to retire for want of supplies. About this time the Baron von Görtz, a German officer, who had during his stay in Turkey become his principal adviser, proposed to him a complete change of policy, and Charles immediately accepted the scheme which Görtz had elaborated, and of which he had already executed some of the preliminaries. He proposed that Charles should make peace with the czar, cede to him the Baltic provinces of Sweden, and gain his alliance. The allies were to replace Stanislas on the throne of Poland and restore the duke of Holstein to his states which had been seized by Denmark. Charles was to invade and conquer Norway, and then land a small army in Scotland, and with the help of the Jacobites, restore the house of Stuart in England, Cardinal Alberoni, then all-powerful in Spain, promising to assist in the accomplishment of this part of the project. The other allies had lately been showing a marked jealousy of the growing power of the czar, and it was no difficult matter for Görtz to detach him from the alliance and negotiate a peace on the part of Sweden. This first step being successfully accomplished, Charles burst into Norway, speedily occupied several provinces, and in the early winter of 1718 besieged Fredrikshall, a strong fortress, which was regarded as the key of Norway. On Sunday, November 30, accompanied by his staff, and by Siguier and Maigret, two French officers in his service, he visited the trenches in the afternoon. Arrived in the foremost trench he found fault with the progress of the work, sent for some more sappers, and leaning on the gabions in front of the trench, himself directed their operations. Night came on rapidly, but still he remained there exposed to the shot of the fortress, for the Danes threw up light-balls, and kept up a continual fire from their batteries. His officers in vain endeavored to persuade him to retire from his dangerous post, he obstinately refused even to shelter himself behind the gabions, though several of those around him had been struck, and about nine o'clock, when the moon had risen and shining on the snow made the night almost as bright as day, a well-aimed shot struck him on the temple, his head fell forward, his hand instinctively grasped his sword hilt, and his officers running up found him leaning over the gabions dead. A musket ball had passed through his head, destroying his left eye and driving the right out

of its orbit. The shot put an end at once to the invasion of Norway, the projects of Görtz, and the power of Sweden in the north of Europe.

Before the end of the following year it began to be whispered that the shot which killed Charles came not from the ramparts of Fredrikshall, but from the Swedish trenches. The two French officers were in turn pointed out as the probable assassins, and Siguier in the ravings of fever actually charged himself with the murder. On his recovery he denied it, but his involuntary self-accusation was generally believed in preference to his denial. Others laid the alleged crime upon the Swedish generals Cronstadt and Stiernross, and it was said that they had been bribed to break up the project of Görtz by a successful pistol-shot before Fredrikshall. In 1746 the tomb of Charles XII. was opened and the remains were examined in order to see if in this way the question could be settled. The officials charged with the examination seem to have known very little about surgery. They at first suggested that the hole through the skull was made by a dagger; then, apparently misled by their ignorance of the well-known fact that the wound at the point of exit is almost invariably larger than that at the point where the bullet enters, they alleged that the ball had struck the right side of the king's head, which was turned away from the fortress. This naturally confirmed the belief that he had been assassinated, although a great mass of concurrent testimony tended to exculpate every one who had been charged with the crime. To solve the mystery of his death, the body was again exhumed by Charles XV., so recently as 1859, when a careful examination of the skull by three eminent medical professors led to the conclusion that the fatal shot had been fired from a distance on the king's left, and from a higher level than that on which he stood. Thus it was finally proved that Charles fell, not by the hand of a traitor, but from his recklessly exposing himself to the fire of the fortress.

CHARLES XIII., king of Sweden, was the second son of Adolphus Frederick and of Louisa Ulrica, sister of Frederick the Great. He was educated for the office of high-admiral, and commanded with great credit against the Russians. On the accession of his brother, Gustavus III., in support of whom he exerted all his influence, he was appointed governor of Stockholm and created duke of Sudermania; and he became regent when Gustavus was assassinated in 1792. In 1796 Gustavus IV. came to his majority, and Charles retired from political life. But when Sweden was threatened by the arms of Napoleon, Gustavus directed his forces with an incapacity so remarkable that the people refused any longer to bear his government. In March, 1809, he was obliged to abdicate; and in May the crown was offered to Charles. A year after, Prince Christian, the heir appointed by the States, having died, Charles, yielding to the wish of the nation, nominated Charles Bernadotte prince royal, and gave the government into his hands, though still retaining the title and some of the dignity of king. After occupying this position for eight years, Charles died in February, 1818.

CHARLES XIV., king of Sweden. See BERNADOTTE.

CHARLES XV., king of Sweden and Norway, succeeded to the throne in 1859, on the death of his father, Oscar I., son of Charles XIV. His rule was popular and liberal. The most important event in his reign was the change which was effected in 1866 in the constitution of the Storting, or parliament, which, from that time has consisted not of four but of two chambers—the first being elected by the provincial representatives, the second by the people. In character Charles was generous and kindly, and his disposition is shown in his

refusal to sanction capital punishment. He possessed considerable taste for literature and art, and published a volume of poems, which were translated into German by A. Van Winderfeld (Berlin, 1866). In 1850 he married Louisa, daughter of the king of the Netherlands, by whom he had one daughter, Louisa, who became the wife of Prince Frederick of Denmark. His relations with Denmark were of the most intimate kind, owing to his personal friendship with the king; but during the struggle of that country against the aggressions of Prussia he was obliged to remain neutral, since neither Sweden nor Norway would take up arms. Charles died September 18, 1872.

CHARLES, count of Anjou and Provence, king of Naples and Sicily, born between the years 1220 and 1226, was the ninth son of Louis VIII. of France. He married Beatrice, heiress of Provence, after scattering his rivals by the aid of an army furnished him by his brother, Louis IX. Soon after he accompanied the king on a crusade, during which he fought with bravery, but achieved no permanent success, and he was at last taken prisoner, with his brother. During his absence most of the towns of Provence formed themselves into republics; but on his return they were quickly subdued, and, among others, Marseilles lost the independence she had before enjoyed. Charles's power was now very considerable; but his ambition was far from being satisfied. He therefore unscrupulously lent his arms to Margaret of Flanders, who offered him the province of Hainault in return for his assistance in setting aside her husband's children by a former wife in favor of her own; but this scheme was crushed by Louis, who caused him to give up Hainault for a sum of money. Charles had now, besides, conceived a loftier ambition. He had been requested to assume the crown of the two Sicilies by Pope Urban IV., who desired to overthrow the bastard Manfred, the Ghibelline king; and in 1265 he was crowned at Rome. A crusade was preached against Manfred, who was defeated and slain. The legitimate heir, Conradin, was also routed (1268), and being betrayed, was meanly tried and executed; a similar fate befell a large number of Italian nobles; many fiefs were confiscated to reward the French followers of the new king; and the rule of the Provençals was often arbitrary and brutal. Charles's ambition continued to widen. He now designed to make himself the head of the Eastern empire. With this end in view, he again accompanied his brother on a crusade; but the accomplishment of his ultimate design was prevented by a terrible storm, and by the outbreak of the plague. He also incurred the enmity of the Pope, Nicholas III., by haughtily refusing to accept the hand of his niece for his own grandson. Nicholas joined the Ghibellines, and took from Charles, who offered no resistance, his titles of senator of Rome and vicar-general of Italy.

In 1280 Nicholas died, and Charles, by means of many intrigues, and after imprisoning two of the cardinals, effected the election of a Frenchman, Martin IV. In return, he was made senator of Rome, and his rival, the Emperor Michael Palæologus, was excommunicated. Another expedition was already fitted out against the East, when news was brought of the rebellion known as the Sicilian Vespers. Aroused by the rough rule of the French, the people were also stirred by the burning exhortations of John of Procida, a Calabrian doctor, formerly friend of Frederick and of Manfred, who had been travelling in disguise through Italy, Greece, and Spain, seeking assistance against the usurpation of Charles. On Easter Monday, 1282, he collected a large assembly of the Sicilian nobles at Palermo. An opportune pretext for a rising soon occurred. The viceroy had forbidden the bearing of arms; and, on the

pretext that weapons were concealed under her dress, a Frenchman insulted a girl of noble family on her very passage to the church where she was about to be married. He was killed on the spot, and every Frenchman in the city soon shared his fate. Some of the other Sicilian towns followed this example; others expelled the French more mildly. Charles at once directed his fleet against Messina. He refused all offers of capitulation, and Messina held out till aid was brought it by Don Pedro of Aragon, and Charles's fleet was burned by the famous sailor, Roger de Loria. Charles, despairing of other means of success, now challenged Pedro to single combat. Pedro accepted the challenge, but Charles alone entered the lists. It is said that the former was dissatisfied with the arrangements, though others regard his acceptance as a mere ruse. Soon after Charles's son was defeated and taken prisoner, and in 1285 Charles himself fell ill, and died at Foggia.

CHARLES II., king of Navarre and count of Evreux, was a grandson of Louis Hutin, and possessed a title to the French throne inferior to that of John II. only on account of the Salic law, and superior to that of Edward III. of England. Handsome, clever, eloquent and bold, he yet thoroughly deserved the title of "The Bad" with which he mounted the throne in 1349, at the age of sixteen. The commencement of his notorious career was the assassination of Le Cerda, the favorite of John, who had been appointed to the duchy of Angoulême, which the king had bought from Charles's mother, but for which the price was not yet paid. For this deed, — which Charles openly avowed, declaring it to be a punishment richly deserved, — John was at first unable to retaliate, being indeed obliged to make good his debts; but not long after (1356) Charles was seized and thrown into prison. During the king's exile in England, Charles, aided by the States-General, obtained his release, and by his eloquence and the suavity of his manners gained the hearts of the Parisians, who made him their captain-general. Suspecting him, however, of too great favor for the aristocracy, they deprived him of the office; but he maintained his alliance with Stephen Marcel, and, at the head of companies of banditti he continued to lay waste the country till 1360, when he made peace with the king. This peace was not final, for Charles V. was resolved to crush him. He was accused of various unscrupulous plots, and extravagant stories were circulated against him, as, for example, that the king's weakness was due to poison administered by his contrivance. On the charge of being concerned in these intrigues, two of his ministers were executed, and his two sons were seized as hostages. The duke of Anjou was persuaded to attack Montpellier, the king of Castille to invade Navarre, and Duguesclin was sent to seize his fiefs in Normandy, and Charles was obliged to yield twenty places as security before he regained his territory. According to the popular story, he expired by a divine judgment, through the burning of the clothes steeped in sulphur and spirits in which he had been wrapped as a cure for a loathsome disease caused by his debauchery.

CHARLES IV., king of Navarre, was the son of John of Aragon, and of Blanche, daughter and heiress of Charles III., king of Navarre. On her death the throne belonged to Charles, but his father retained it, and took as second wife the ambitious and unscrupulous Jeanne of Castille. Charles did not press his claim, but devoted himself to literature, until his step-mother roused him by repeated indignities. He succeeded in having himself crowned, but soon after was defeated and imprisoned (1652). Next year he was released; the struggle recommenced, and he gained possession of a considerable part of Navarre. He was reconciled to his

father, and recognized as king of Barcelona, but Jeanne caused him to be arrested and poisoned. He was a man of gentle disposition, and of considerable learning. He left a Spanish translation of the *Ethics of Aristotle*, a chronicle of the kings of Navarre, and several poems.

CHARLES, or CHARLES LOUIS, archduke of Austria, was the third son of the Emperor Leopold II. He commenced active service against the French at the age of twenty-two, and so distinguished himself that at twenty-five he was intrusted with the supreme command of the army of the Rhine. He defeated Jourdan at Teiningen, Amberg, and Würzburg, and Moreau at Rastadt; and the year after (1797) he was honored with the command against Napoleon in Italy. In a month, however, peace was concluded; but the war soon recommenced, and in 1799 Charles defeated Jourdan once more in Swabia, and then checked Masséna in Switzerland. After this he was forced by ill-health to retire from service. He was appointed governor of Bohemia; but it was not long before he had again to oppose his old enemy Moreau, with whom he made terms which were afterwards taken as the basis of the peace of Lunéville. His popularity was now such that the Diet of Ratisbon, which met in 1802, resolved to erect a statue in his honor, and to give him the title of Savior of his Country; but Charles refused both distinctions. He was for some time president of the council of war, but in 1805 he was once more in Italy, where he won the victory of Caldiero over Masséna. On his return to Austria he became commander-in-chief and again president of the Aulic council of war. He employed his time in organizing the army and establishing a strong reserve force, till in 1809 he took the field against the French army commanded by Napoleon in person. He carried on the conflict for five days, and fought with great gallantry; but at last, being wounded and overpowered, he retreated in good order. At the end of the campaign he gave up all his military offices, and spent the rest of his life in retirement, with the exception of a short time, when, on the return of Napoleon from Elba, he became governor of Mayence.

CHARLES, the Bold, duke of Burgundy, born in 1433, was the son of Philip the Good of Burgundy and Isabella of Portugal. Remarkable both for his personal qualities and also for his position as the leader of the last great struggle of the feudal lords against royalty in France, and as the life-long enemy of crafty Louis XI., Charles was the last great figure of the Middle Ages. His physical strength and energy were extraordinary. He was full of the most lofty ambition, and capable of the most obstinate determination. He never forgot an injury. His passion was terrible and frequent. His boldness amounted to the rashness of fury. He was careless of luxury, though, in imitation of the ancient conquerors about whom he loved to read, he delighted to surround himself with magnificent display; and he presented an example of conjugal fidelity most remarkable in the society in which he lived.

As Charles rose to manhood, he found his father under the control of the Croys, whose usurpation of what he regarded as his own rightful function he deeply resented; and he allowed himself to be banished rather than take one of the family into his household. Soon after — he was at this time count of Charolais — he joined the duke of Brittany in forming a great confederation of the French nobles against King Louis. The confederates, calling themselves the League of the Public Weal, declared that their object was to get rid of bad ministers, to abolish taxes, and relieve the people from oppression. They maintained good discipline, paid for all they consumed, and consequently were opposed neither by the townsmen nor by the country-folk, while the gentry with their dependents flocked to them

standard. In 1465 Charles met the royal army in the battle of Montlhéry, which was decided by the retreat of the latter during the following night. Paris was besieged; and Louis was forced to surrender Normandy to the duke of Berry, the towns on the Somme and the counties of Boulogne and Guienne to the count of Charolais, and other territory to other of the nobles. Charles's next exploit was the conquest of Liége, which, hitherto ruled democratically under the constitutional control of its bishop, was now struggling against the encroachments of Burgundy. The town of Dinant alone he excepted from the peace which he granted to the rest of the principality; and a year later he returned to take vengeance upon it. Its crime was that some of its apprentices had insulted himself and his mother by burning him in effigy as a bastard, and its punishment was an extravagant revenge. It was burned to the ground; of its men numbers were butchered, and the rest remained the unfortunate prisoners of the rude soldiery. The women were spared to be exposed to the extremes of cold and hunger, but were saved from worse treatment by the stern regard for female honor, which was Charles's most admirable characteristic.

At the age of thirty-four Charles became duke of Burgundy. Immense changes were at once effected. He permitted none of the gay festivity and wasteful profusion which had been common in his father's time, but the court was directed with a stately and splendid ceremony, in which the duke took his full share. Everything was arranged, though liberally, yet with strict order and economy; the state of the finances was carefully examined, and the amount in the treasury was largely increased by unusual demands from the Estates. Every petitioner, however humble, was heard; the duke shirked no details of business, was present at every council, and sharply rebuked or punished with a fine any absence or inattention on the part of the courtiers. A strict system of administering justice was instituted, and the law was carried out impartially even in the case of the most popular of the nobles.

Soon after his accession Charles increased his political influence by taking as his second wife Margaret, the sister of Edward IV. of England. It was not long before he required all his power; for soon Louis again took possession of Normandy, and contrived to detach the duke of Brittany from his alliance with Burgundy. But Charles at once made ready for war, and the king in alarm took the daring step of requesting a meeting, and placing himself in the duke's hands at Peronne. Unfortunately for Louis, he had been for some time inciting the people of Liége to rebellion, and they chose this moment for an outbreak. Charles was mad with indignation, and with great difficulty restrained himself from taking vengeance upon the person of the king. After three days of irrepressible passion his wrath was so far spent that he contented himself with requiring Louis to undergo the ignominy of witnessing the punishment of the revolt which he had himself instigated, and with extracting from him a treaty, which, among other most important concessions, confirmed to the duke the possession of the territory which he then held, sanctioned the alliance with England, and took away the right of appeal from the courts of Flanders to the Parliament of Paris. In case of violation of this compact, the king invoked upon himself the curse of excommunication and the loss of the fealty of Burgundy; and a letter, signed by Louis, was despatched to each of the princes of the blood, requiring them in that event to take up arms against him.

Soon after this Liége was burned, like Dinant, and its inhabitants nearly exterminated, the fighting-men being mostly butchered, and the aged, the women, and

the children exposed to the terrible cold; and the powerful city of Ghent, whose mob had forced from the duke the abolition of the hated cueillote and certain other concessions during his passage through the city before his coronation, was fain to avert his anger by giving up all, and allowing its charter to be annulled.

Charles had now reached the height of his power, but his greatness was unsubstantial. His subjects were becoming much estranged from him. The placid trade-loving Netherlanders found it hard to bear his arbitrary and haughty passion. The courtiers became weary of the stiff ceremonial of the court and the constant toil they were obliged to undergo. Comines (seeing, as he tells us, that his master was madly rushing to destruction, but, as we can perceive, also affected by the promises of Louis) went over to the court of France. The king was now bold enough to reverse his hypocritical policy, and deny the validity of the treaty which he had signed under constraint at Peronne; and the towns on the Somme, never loyal to Burgundy, were reattached to France. The consequent war was, however, carried on by Charles with his usual success and his usual extravagance of severity.

His ambition and his policy were now changed. He cared no longer to make the lords independent of the king, but aimed at erecting a kingdom with himself as independent sovereign. Circumstances enabled him to obtain the reversion of Gueldres; and he entered into negotiations with the Emperor Frederick, to whose son he agreed to marry his daughter on condition that he should himself be elected king of the Romans. The emperor proposed instead to crown him king of Burgundy. A meeting enlivened by a protracted round of gorgeous jousts and feasts, which held at Trèves (1473), in order to carry out the latter proposal; but the electors made a protest to Frederick, who was not remarkable for decision, and persuaded him to flee secretly by night.

In 1469 Sigismund, duke of Austria, being in great financial difficulty, had sold Alsace to Charles. The governor appointed by the latter was Peter von Hagenbach. His boldness as a soldier, his rough shrewdness, and his capacity for strong government had recommended him; but horrible stories were told of his brutality, his license, and his blasphemies. He did indeed terrify the country into order, but his severity at length excited people and nobles alike against him, and he was tortured and condemned to death by a court of deputies, representing the Alsatian towns, with Bern, and one or two others. Charles did not fail to take signal vengeance, and the country was given up to indiscriminate slaughter and devastation. But he was now surrounded by powerful and determined enemies. He had himself refused to renew the treaty with Louis, who had on his part purchased the alliance of the Swiss. Sigismund of Austria, now desirous of redeeming Alsace, but having no objection to save his money, had been concerned in the rebellion of that province, and afterwards openly joined the French. But, notwithstanding all this, and in spite of the prohibitions and threats of the emperor, Charles prepared for the invasion of Cologne, in support of its bishop-ruler, by whose means he expected to bring the city under his own control. As a preliminary he attacked the strong town of Neuss. For eleven months it appeared that nothing could tear him from the siege. The Swiss routed his army, and ravaged Franche-Comté; the French army laid waste his territory and pillaged his towns; the emperor opposed him with a large force; the Pope commanded him to desist. At length he came to an understanding with the emperor. Neuss was put under a papal legate, and the fate of Cologne was left in the hands of the Holy Father (June, 1475).

Immediately after this the English landed at Calais, but only to sign a treaty of peace with Louis at Picquigny. Yet Charles did not give up heart; and an important acquisition was made in the conquest of Lorraine. Again the Swiss took the aggressive, and possessed themselves of the Pays de Vaud. Notwithstanding his capture of Grandson, Charles was plainly overmatched; and, in 1476, he was utterly routed by them at Morat with immense slaughter. Still with no thought of yielding, he devoted himself with all his energy to raise and organize a fresh army. In a few months he was once more ready for war. René had meanwhile recovered Nancy; but soon, through the cowardice of the Alsations, he was deserted, and his capital was invested by Charles. But René's triumph was at hand. The assistance of the Swiss was gained, and the Burgundians were attacked by an enemy they could not resist. On the 5th of January, 1477, the battle took place. The Burgundians were scattered, and next day the massive body of Charles the Bold was found in a ditch, mutilated by several deadly wounds. It was buried at Nancy, but in 1550 his remains were removed to Bruges by Charles V.

CHARLES ALBERT, king of Sardinia, was the son of Charles Emmanuel of Savoy-Carignano. In his youth Charles became attached to the national party in Italy, and even formed a connection with the Carbonari. In 1821 Victor Emmanuel, on his abdication, appointed him regent; and he now availed himself of the opportunity for carrying out a liberal policy. He confirmed the constitution which had lately been established on the model of the new Spanish constitution, and which consisted of an assembly of one chamber, with a king deprived of the right of veto and of almost all real power. The approach of the Austrians, however, and the declaration of the new king, Charles Felix, refusing to recognize his acts, caused him to flee secretly from Turin after holding the regency little more than a week, and he was afterwards forbidden to enter the Sardinian court. In 1823 he served as a volunteer in the French army which invaded Spain in order to overthrow its new constitution; and by thus deserting his principles he obtained permission to return to Turin. He was for a few months, in 1829, viceroy of Sardinia; and in 1831 he succeeded Charles Felix on the throne. He felt obliged to resort to severe measures in order to secure his throne against the secret societies, of which the chief at that time was the society of "Young Italy," which had been founded by Mazzini. In 1847 risings took place in Sicily, Rome, Tuscany, and Naples; the Austrians were expelled from Milan, and the people of Piedmont gained the re-establishment of the constitution which Charles had advocated in his youth. At the same time Charles greatly increased the freedom of the press. During the next year he marched against the Austrians, who had already been broken by defeat, and who at once retreated. On the last day of April, 1848, he won the victory of Pastrengo, and in the end of May, that of Goito. But two months after, he was defeated at Custoza by Marshal Radetsky, and forced to retire to Milan, where he made an armistice with the Austrians, and, contrary to his promise, surrendered the city. On the expiration of the truce Charles again took up arms. A battle ensued with Radetsky at Novara, in which the Piedmontese army was rapidly and completely routed, though the king risked his life bravely, and some thought even desperately. An armistice was again sought, but the terms offered by Austria were such that Charles abdicated in favor of his son Victor Emmanuel II. He died four months later, on 28th July, 1849. Charles did what he could to further commerce and to popularize art and science, and appears, notwithstand-

ing apparent inconsistencies, to have sincerely desired the good of his people.

CHARLES AUGUSTUS, grand-duke of Saxe-Weimar, having been early deprived of his father, was educated under the governorship of Count Görtz, and among his tutors were Wieland, Knebel, Seidler, and Hermann. At seventeen he commenced his friendship with Goethe, who afterwards joined Schiller, Wieland, and Herder in forming the company of men of genius that distinguished this court. Charles assumed the direction of the government at the age of eighteen; and in the next year entered the Prussian army, in which he remained till after the defeat at Jena (1806), when he became a member of the Rhenish confederacy, and furnished aid to the French. In 1813, he joined the coalition against Napoleon, and took the command of an army of Saxons, Hessians, and Russians. He fought among the Allies in 1815; and at the Congress of Vienna he received as reward for his services the enlargement of his principality, and its erection into a grand-duchy. Charles died in 1828. His correspondence with Goethe was published in 1863 at Leipsic.

CHARLES EDWARD, or, in full, CHARLES EDWARD LOUIS PHILIP CASIMIR, was born on the 31st December, 1720. He was the elder son of James, known as the Pretender and the Chevalier St. George, grandson of James II. and nephew of Anne, he was heir of line of both these sovereigns; but the hereditary rights of his father and himself had been declared null under the Proclamation of Rights and other parliamentary enactments which followed and completed the Revolution of 1688.

The young prince was educated at Rome, his mother, by blood a Sobieski, superintending his studies for some years. On the whole his education was good; he became conversant with the French, Italian, and Latin languages, and his religious training was watched with interest by the Pope. His father's miniature court was frequented by English and Scottish noblemen of Jacobite sympathies, by foreign enemies of the house of Hanover, and by bigoted supporters of the Romish faith; and the influence of this society is distinctly evident upon his after life. In 1734, the duke of Livia, afterwards duke of Berwick, who was proceeding to join Don Carlos in his struggle for the crown of Naples, passed through Rome. He offered to the Pretender to take charge of his son, should Charles be willing to accompany him in his expedition. This offer was accepted, and the youth of fourteen, having been appointed general of artillery by Don Carlos, shared with credit the dangers of the successful siege of Gaeta.

The handsome and accomplished youth, whose doings were eagerly reported by the English ambassador, was now introduced by his father and the Pope to the highest Italian society, which he fascinated by the frankness of his manner and the grace and dignity of his bearing. To these, more than to any power of his mind or heroism of his career, are to be attributed the successes of his early life. James despatched his son on a tour through the chief Italian cities, that his education as a prince and a man of the world might be completed. The distinction with which he was received on his journey, the royal honors paid to him in Venice, and the jealous interference of the English ambassador in regard to his reception by the Grand Duke of Tuscany, show how great was the respect in which the exiled house was held by foreign Catholic powers, as well as the watchful policy of England in regard to its fortunes.

The Pretender himself calculated upon foreign aid in his attempts to restore the monarchy of the Stuarts; and the idea of rebellion unassisted by invasion or by support of any kind from abroad was one which it was

left for Charles Edward to endeavor to realize. Of all the European nations France was the one on which Jacobite hopes mainly rested, and the keen sympathy which Cardinal Tenein, who had succeeded Fleury as French minister of war, felt for the Pretender resulted in a definite arrangement for an invasion of England to be timed simultaneously with a pre-arranged Scottish rebellion. Charles was secretly despatched to Paris. A squadron under Admiral Roquefeuille sailed from the coast of France. Transports containing 7000 troops, to be led by Marshal Saxe, accompanied by the young prince, set sail for England. The sight of the English fleet and a severe storm effected, however, a complete disaster without any actual engagement having taken place. The loss in ships of the line, in transports, and in lives was a crushing blow to the hopes of Charles, who remained in France in a retirement which he keenly felt, and which he resolved to quit by a personal visit to Scotland.

He had at Rome made the acquaintance of Lord Elcho and of Murray of Broughton; at Paris he had seen many supporters of the Stuart cause; he was aware that in every European court the Jacobites were represented in earnest intrigue; and he had now taken a considerable share in correspondence and other actual work connected with the promotion of his own and his father's interests. Although dissuaded by every friend he had, he, on 13th July, 1745, sailed for Scotland on board the small brig "La Doutelle," which was accompanied by a French man-of-war, "The Elizabeth," laden with arms and ammunition. "The Elizabeth" fell in with an English man-of-war and had to return to France, while Charles escaped during the engagement, and at length arrived on the 2d of August off Erisca, a little island of the Hebrides. Receiving, however, but a cool reception from Macdonald of Boisdale, he set sail again and arrived at the bay of Lochnahuagh, on the west coast of Inverness-shire.

The Macdonalds of Clanranald and Kinloch Moidart, along with other chieftains, again attempted to dissuade him from the rashness of an unaided rising, but they yielded at last to the enthusiasm of his manner, and Charles landed on Scottish soil in the company of the "Seven Men of Moidart," who had come with him from France. Everywhere, however, he met with discouragement among the chiefs, whose adherence he wished to secure; but at last, by enlisting the support of Cameron of Lochiel, he gained a footing for more than a miniature rebellion. With secrecy and speed communications were entered into with the known leaders of the Highland tribes, and on the 19th of August, in the valley of Glenfinnan, the standard of James III. and VIII. was raised in the midst of a motley but increasing crowd.

On the same day Sir John Cope, at the head of 1500 men, left Edinburgh in search of Charles; but, fearing an attack in the Pass of the Corryarrick, he changed his proposed route to Inverness, and Charles thus had the undefended south country before him. In the beginning of September he entered Perth, having gained numerous accessions to his forces on his march. Passing through Dunblane, Stirling, Falkirk, and Linlithgow he arrived within a few miles of the astonished metropolis, and on the 16th of September a body of his skirmishers defeated the dragoons of Colonel Gardiner in what was known as the "Canter of Coltbrig." His success was still further augmented by his being enabled to enter the city, a few of Cameron's Highlanders having on the following morning, by a happy ruse, secured the Netherbow Port. On the 18th he occupied Holyrood.

Cope had by this time brought his disappointed forces

by sea to Dunbar. On the 20th Charles met and defeated him at Prestonpans, and returned to prosecute the siege of Edinburgh Castle, which, however, he raised on General Guest's threatening to lay the city in ruins. In the beginning of November Charles left Edinburgh never to return. He was at the head of at least 6000 men; but the ranks were speedily thinned by the desertion of Highlanders, whose experience had led them to consider war merely as a raid and an immediate return with plunder. Having passed through Kolso, he, on the 9th November, laid siege to Carlisle, which capitulated in a week. On the 4th of December he had reached Derby and was within two days' march of London, whose inhabitants were terror-struck, and where a commercial panic immediately ensued. Two armies under English leadership were now in the field against him,—the one under Marshal Wade, whom he had evaded by entering England from the west, and the other under the duke of Cumberland, who had returned from the Continent. London was not to be supposed helpless in such an emergency; Manchester, Glasgow, and Dumfries, rid of his presence, had risen against him, and Charles paused. There was division among his advisers and desertion among his men, and on the 6th of December he commenced his retreat.

Closely pursued by Cumberland, he marched across the border, and at last stopped to lay siege to Stirling. At Falkirk, on the 17th of January, 1746, he defeated General Hawley, who had marched from Edinburgh to intercept his retreat. A fortnight later, however, Charles raised the siege of Stirling, and after a weary though successful march, rested his troops at Inverness. Having taken Forts George and Augustus, and had varying success against the supporters of the Government in the north, he at last prepared to face the duke of Cumberland, who had passed the early spring at Aberdeen. On the 8th of April the duke marched thence to meet Charles, whose little army, exhausted with a futile night march, half-starving, and broken by desertion, he engaged at Culloden on 16th April, 1746. The decisive and cruel defeat sealed the fate of Charles Edward and the house of Stuart.

Charles fled. Accompanied by the faithful Ned Burke, and a few other followers, he gained the western coast. Hunted hither and thither, the prince wandered on foot or cruised restlessly in open boats among the many islands of the west. The barren Benbecula sheltered him for a month. In lack of food, unsightly in appearance, having a strange contentment under his misfortunes, and already betraying his weakness for liquor, Charles, upon whose head a price of £30,000 had a year before been set, was relentlessly pursued by the spies of the Government. Disguised in women's clothes, and aided by a passport obtained by the devoted Flora MacDonald, he passed through Skye, and parted from his conductress at Portree. Shortly afterwards he was again on the mainland, and in the end of July he took refuge with the "Seven men of Glenmoriston," a body of outlawed Jacobite freebooters, with whom for a time he was safe. Having joined Lochiel and Cluny Macpherson, he at last heard that two French ships were in waiting for him at the place of his first arrival in Scotland—Lochnahuagh.

He embarked with speed, and sailed for France. Ere long he was again intriguing in Paris, and even in Madrid. So far as political assistance went his efforts were in vain; and he plunged eagerly into the gaieties of Parisian society, of which he was the hero for some years.

The enmity of the English Government to Charles Edward made peace with France an impossibility, so long as she continued to harbor the young prince. A

condition of the treaty of Aix-la-Chapelle, concluded in October, 1748, was that every member of the house of Stuart should be expelled from the French dominions. Charles had forestalled the proclamation of the treaty by an indignant protest against its injustice, and a declaration that he would not be bound by its provisions. But his indignation and persistent refusal to comply with the request that he should voluntarily leave France had to be met at last with force; he was apprehended, imprisoned for a week at Vincennes, and on the 17th December conducted to the French border. He lingered at Avignon; but the French, compelled to hard measures by the English, refused to be satisfied; and the Pope, under threat of a bombardment of Civita Vecchia, advised the prince to withdraw. Charles simply and quietly disappeared; and for years Europe watched for him in vain. It is now established, almost with certainty, that he returned to the neighborhood of Paris; and it is supposed that his residence was known to the French ministers, who, however, firmly proclaimed their ignorance. In 1750, in 1752, and again, it is thought, in 1754, he was even in London, hatching futile plots and risking his safety for his hopeless cause.

During the next ten years of his life Charles Edward had become a confirmed profligate. His illicit connection with a Miss Walkenshaw, whom he had first met at Bannockburn House while conducting the siege of Stirling, his imperious, fretful temper, his drunken habits and debauched life, could no longer be concealed. He wandered over Europe in disguise, alienating the friends and crushing the hopes of his party; and in 1766, on the death of his father, he was treated even by the Pope with contempt, and his title as heir to the British throne was openly repudiated by the great powers.

It was in 1772 that France, still intriguing against England, arranged that Louise, Princess of Stolberg, should marry the besotted prince (now passing under the title of Count Albany) who twelve years before had so cruelly maltreated his paramour that she had left him for ever. Six years afterwards, however, the countess had to take refuge in a convent. Her husband's conduct was brutal, and her own life was in danger at his hands. Her suspected attachment to Alfieri, the poet, and the persistent complaints of the prince at last brought about a formal separation, and Charles Edward, lonely, ill, and evidently near death, remained at Florence. In remorse he wrote for his daughter, the child of Miss Walkenshaw, and she remained with him, under the name of duchess of Albany, during the last two years of his life. He died at Rome on the 31st of January, 1788, and was buried in the *Grotte Vaticane* of St. Peter's.

CHARLES EMMANUEL I., The Great, duke of Savoy, succeeded his father Philibert Emmanuel in 1580. After having fought in alliance with Spain, France, and Germany, he laid claim to the throne of France on the death of Henry III. He became involved in war with Henry IV. and also with the Swiss, and was defeated at St. Joire in 1589. But the peace to which his defeat compelled him was soon broken, and he joined the Catholic league. He gained several successes, and obtained possession of Saluzzo, for which he had fought both with Henry III. and Henry IV. He next attacked Geneva, but without success; and his alliance with France against Spain was equally unfortunate, for Henry IV. dying, the regent made peace with Spain, and Charles was compelled to follow her example. After this he conquered Montferrat, which, however, he was unable to retain; and in 1619 he laid claim to the imperial crown without success. New leagues against Spain and against the Genoese followed. But finally the

French conquered Savoy and part of Piedmont, and Charles died, overwhelmed with misfortune.

CHARLES MARTEL (about 689-741), was an illegitimate son of Pepin d'Heristal, duke of Austrasia and mayor of the palace of the Merovingian kings of France. The wildness of Charles's youth, and, most of all, the suspicion that he was concerned in the murder of his brother, totally estranged the affection of his father, who left the mayoralty to one of his grandsons, and the regency to his wife. The Austrasians, however, unwilling to be ruled by an infant and a woman, made Charles their duke. His life was from that time one continual battle, of which the result was to lay the foundation of the modern French kingdom. He subdued the Neustrians, and made himself mayor of the palace; he forced the duke of Aquitaine to do homage to the French crown; he drove back the Saxons, Bavarians, and other German tribes, who ravaged the frontier; and he compelled the Frisians to embrace Christianity. But by far his most important achievement was the victory which he won between Tours and Poitiers in 732, when he finally stayed the northward advance of the Saracens, and thus materially affected the subsequent course of European history. It is a commonly accepted tradition that it was his valor in this battle which gained him the title of Martel, or "the Hammer." In 737, on the death of Thierry IV., Charles did not go through the form of appointing another nominal king, though he never altered his own title. He divided his territory between his two sons, Pepin and Carloman, the former receiving Neustria, the latter Austrasia; and on the death of Carloman, Pepin gained possession of the whole kingdom, and assumed the title of king. Of the favor of the church Charles Martel was careless; he seized her lands to reward his warriors; and though he more than once defended the Pope, his name was execrated by the clergy, who were fond of painting him amid the torments of hell.

CHARLESTON, a city, a seaport, and the capital of Charleston county, South Carolina, United States, stands upon a flat tongue of land pointing south-eastward between the Ashley and Cooper rivers, which here debouch into a spacious harbor extending about seven miles south-east to the Atlantic, with an average width of two miles. The harbor is surrounded by land on all sides except the entrance, which is about one mile wide and 18 feet deep. The water in the harbor, however, is very much deeper, and much work to increase the depth of the entrance has been done. Fronting the Atlantic, and extending northward, is Sullivan's Island, about six miles long; and on the other side of the entrance is Morris Island which stretches to the southward. Both islands are penetrated by channels. The harbor is well defended,—at its entrance by Forts Sumter and Moultrie, and inside by Castle Pinckney and Fort Ripley.

Owing to the lowness of the ground on which it is built, Charleston presents a peculiarly picturesque appearance from the harbor. Its spires and public buildings seem to rise out of the sea, while the richness of the surrounding foliage gives the place a particularly engaging aspect. Its proximity to the ocean tends materially to the equalization of the climate. In June, 1874, the mean temperature in January was 52.1°, in June 81°, in July 79.3°, and in August 79.1°. The maximum temperature (96°) occurred in June, and the minimum (27°) in January. The city covers an area of about five square miles, and has a water front of about nine miles. The streets are regularly laid out, and are generally well paved and lighted with gas. King Street and Meeting Street, the two chief avenues of the city, extend in nearly parallel lines, and are intersected by

the shorter cross streets, which run between Ashley and Cooper rivers. There is little uniformity in the buildings, and there is a want of public squares and places; but many of the residences are surrounded with spacious ornamental grounds, which, with the numerous shade trees of all kinds, give the city a picturesque appearance. The most noted public buildings are the city orphan house, which has extensive grounds, the city hall, the custom house, the arsenal, the court-house, and the Academy of Music, a theatre, which is esteemed one of the best in the Southern states. The population of Charleston has increased from 18,711 in 1800 to 42,985 in 1850, to 40,519 in 1860, to 48,956 in 1870 (of whom 22,749 were colored, and 4,892 foreigners), and to 56,540 in 1875 (of whom 31,012 were colored). The population in 1890 was 54,955.

Charleston is one of the leading commercial cities of the South, being the outlet for a very rich rice and cotton producing country, and a point of supply for an extensive territory embracing South Carolina and parts of North Carolina, Georgia, Alabama, Florida, Tennessee, and Mississippi. The commerce consists chiefly of exports.

The large quantities of bone phosphate annually shipped are obtained in the vicinity of the city, where the richest deposits of this material in the United States have been discovered. A valuable fertilizer is manufactured from the phosphate. The manufactures of Charleston are of inferior importance compared with its commerce. Among the most important industries are the manufacture of fertilizers from phosphate, in which more than \$2,000,000 is invested, and the preparation of rice for market by removing the husk, cleaning, &c. There are three rice mills in the city, where a large part of the rice crop of South Carolina and Georgia is cleaned. The manufacture of sulphuric acid is extensively carried on in connection with the phosphate industry. Charleston has an extensive wholesale trade in dry goods, boots and shoes, clothing, hats and caps, drugs and medicines, &c. The Santee canal, 22 miles long, connects Charleston with the Santee river. The city is divided into eight wards, and is governed by a mayor and eighteen aldermen. It has an excellent fire department and an efficient police system. Among the public charitable institutions are the city orphan house, the Catholic orphan asylum, the almshouse, the asylum for the aged and infirm, the city hospital, and the asylum for colored orphans.

Charleston was founded about 1680 by English colonists who had come over with William Sayle. As early as 1670 they had settled a few miles distant from the site of the present city at a place which they named Charleston. The new village soon began to flourish, while the original settlement dwindled away and disappeared. During the revolutionary war two unsuccessful attempts were made by the British forces to take Charleston,—the first by Sir Peter Parker and Sir Henry Clinton in 1776, and the second by General Prevost in 1779. After a siege of several weeks, the city was taken in May, 1780, by a force under Sir Henry Clinton, but it was evacuated by the British in December, 1782. In the recent civil war between the Northern and the Southern states, Charleston was the scene of the first hostilities, which commenced April 12, 1861, with the bombardment of Fort Sumter by the Confederate General Beauregard. After the surrender of the Fort the Confederates took possession of the city, and held it until February, 1865. In April, 1863, a naval attack was made upon the fortifications in the harbor by a Federal fleet of nine iron-clads commanded by Admiral Du Pont. This effort, however, proved unsuccessful, as was also a land attack made by General

Gilmore in July ensuing. The advance of General Sherman's army through South Carolina, and the fall of Columbia, the capital of the state, led to the evacuation of Charleston by the Confederates on the 17th of February, 1865. The public buildings, cotton warehouses, stores, shipping, &c., had previously been fired by order of the general in command. From this and other causes the city suffered much injury during the war; but since its close many new buildings have been erected, and there has been marked commercial and industrial progress. In 1886 the city received another severe setback from an earthquake, which laid a large portion of its buildings in ruins, and badly demoralized the inhabitants. In a few months, however, the subterranean disturbances having entirely subsided, the town was rebuilt, and at present but few traces of the disaster are left.

CHARLESTON, the county seat of Coles county, Ill., has a population of 4,135, and contains two national banks, flour mills, woolen mills, and manufactories of brooms, stoves, plows and carriages. It has good railroad facilities, a high school and public schools, and six churches.

CHARLESTON, the capital of West Virginia, is situated on the northern bank of the great Kanawha river, in Kanawha county, and is a flourishing city, with a population of 7,257. It was founded as far back as 1775, the inducements to settlers being the presence of productive salt springs. Natural gas was discovered in 1841, and the wells have recently been developed. Coal is abundant in the district tributary to Charleston, and coke is manufactured in vast quantities. There is a large export trade in lumber, both by railroad and river. The Kanawha river has been improved at an expense of nearly \$3,000,000 by the Federal government, the system adopted being one of movable dams.

CHARLESTOWN, Jefferson county, W. Va., once the capital of the State, and noted as the scene of the hanging of John Brown, of Ossawatimie. Pop. 3,000.

CHARLESTOWN, formerly a suburb of Boston (now incorporated), in Suffolk county, Mass., with a population of 35,000.

CHARLET, NICOLAS TOUSSAINT, a designer and painter, more especially of military subjects, was born in Paris December 20, 1792, and died there October 30, 1845.

CHARLEVILLE, a handsome and well-built town of France, on the left bank of the Meuse, in the department of Ardennes. Population, 13,000.

CHARLEVOIX, PIERRE FRANCOIS XAVIER DE, a French Jesuit, traveler and historian, was born at St. Quentin in 1682, and died in 1761.

CHARLOTTE, the county seat of Eaton county, Mich., nineteen miles southwest of Jackson, is situated at the crossing of two railroads, and possesses considerable manufactories of flour, staves, barrels, sash and blinds. It has a national bank, six churches, a high school, and a population of 4,000.

CHARLOTTE, the county seat of Mecklenburg county, N. C., is situated in the northwestern part of the State, 162 miles west of Raleigh, was first settled in 1756 by Scotch-Irish immigrants, and is now a place of considerable importance, the 1890 census placing its population at 11,557. Charlotte has three national banks, daily and weekly newspapers, twelve churches, and numerous schools, and is the seat of Biddle University (Presbyterian), and a female seminary. Its chief industries consist of machine shops, cotton, flour and planing mills, and it has gas and water-works.

CHARLOTTENBURG, a town of Prussia, in the province of Brandenburg, district of Potsdam, and circle of Teltow. Population, 20,000.

CHARLOTTESVILLE, a city of Virginia, in Albemarle county, noted as the seat of the University of Virginia. It has a population of 6,000. Some manufactures are carried on, a capital of \$2,000,000 being invested. The town is well supplied with public buildings, the most notable structure being the main university hall. The other educational institutions are white and colored free graded and common schools. The university has an invested capital of \$1,500,000, and is supported at an annual cost of \$150,000. It was founded by Thomas Jefferson, and has a library containing 57,000 volumes.

CHARLOTTETOWN, capital of the province of Prince Edward Island, is situated at the confluence of Hillsborough, York and Elliott rivers. It is a well-built city, containing broad streets, spacious squares and parks, and many fine buildings. Chief among these are the Provincial building, the Dominion building, the courthouse, and the new city hall, the latter completed in 1888. The city has an excellent system of water supply, police and fire departments, and good sewerage, and is lighted by gas and electricity. The assessed valuation (taxable) is nearly \$3,000,000, and the city debt of \$289,000 is more than covered by the available assets. Charlottetown contains four banks, nine churches, a college, a normal school, three public schools, and several colleges and seminaries, and is the seat of a Roman Catholic bishop. It has good railroad communications and an extensive coastwise trade. The population (1890) is returned at 15,000.

CHARM (Lat. *carmen*, a song), properly a form of words, generally in verse, supposed to possess some occult power of a hurtful, a healing, or a protective kind. Charms exert their influence either by being recited, or by being written and worn on the person, and in this latter case they may be classified with amulets. The belief in charms is widespread.

CHARNEL-HOUSE (Fr. *charnier*; Lat. *caro*, flesh), a chamber situated in a churchyard or other burying place in which the bones of the dead which were thrown up by the grave-diggers were deposited.

CHAROLLES, a town of France, the capital of an arrondissement in the department of Saône-et-Loire, three miles by rail west-northwest of Macon.

CHARON, in Grecian Mythology the son of Erebus and Nox, whose office it was to ferry the souls of the deceased who had received the right of sepulture over the waters of the Acheron. He is usually represented as habited in a red gown.

CHARONDAS, a celebrated lawgiver, who legislated not only for his native Catana, but likewise for various cities of Magna Græcia. By some he is said to have been a disciple of Pythagoras, who flourished 540-510 B.C.

CHARPENTIER, FRANCOIS (1620-1702), archæologist and man of letters, was born at Paris. He is credited with an important share in the production of the magnificent series of medals that commemorate the principal events of the age of Louis Quatorze. Charpentier, who was long in receipt of a pension of 1,200 livres from Colbert, was erudite and often ingenious, but he was always heavy and commonplace.

CHARRON, PIERRE, a French philosopher, born in Paris in 1541, died in 1603.

In 1594 Charron published *Les Trois Verites*, in which, by methodical and orthodox argument, he seeks to prove that there is a God and a true religion; that the true religion is the Christian, and that the true church is the Roman Catholic. The last book (which is three-fourths of the whole work) is chiefly an answer to the famous Protestant work, entitled *Le Traite de l'Eglise*, by Du Plessis Mornay; and in the second edi-

tion (1595) there is an elaborate reply to an attack on the third *Verite*, which had been published anonymously by a Protestant writer.

In the year 1601 Charron published at Bordeaux his third and most remarkable work—the famous *De la Sagesse*, a complete popular system of moral philosophy.

CHART, a marine or hydrographical map exhibiting a portion of a sea or other water, with the islands, coasts of contiguous land, soundings, currents, etc.

CHARTA, MAGNA. The Great Charter which was granted by King John of England to the barons, and has been viewed by after-ages as the basis of English liberties. The oppressions and exactions of a tyrannical and dastardly Sovereign called into existence a confederacy of the barons or tenants-in-chief of the Crown, who took up arms for the redress of their grievances. Their demand was for the restoration of the laws of Henry I.; laws which might probably be characterized as an ingrafting of Norman feudalism on the “ancient custom of England.” A conference between the Sovereign and the barons was held at Runnymede. King and barons encamped opposite each other; and after several days’ debate, John signed and sealed the charter with great solemnity on June 15, 1215. The copy preserved in Lincoln Cathedral is regarded as the most accurate and complete; and a fac-simile of it was engraved by order of the late Board of Commissioners on the public records. The Great Charter and Charter of the Forests are printed with English translations and prefixed to the edition of the Statutes of the Realm published by the Record Commission.

CHARTER. The word charter, meaning thick paper or parchment, came to be applied, from the substance on which it was written, to a document granted by a prince conferring or acknowledging privileges to be enjoyed by either the whole or a portion of the people under his rule. In England, from the Conquest downwards, there was a struggle between those who sought to enforce the feudal exactions which the Normans had learned in France and those who attempted to resist the innovation and hold to the old Saxon customs. If at first it was a contest between the monarch with his Norman followers on the one side and the Saxon population on the other, the conditions had changed during the lapse of nearly a century and a half preceding the reign of John, and the barons were so frequently incensed by the oppressions and exactions of the ambitious kings, to whose power they had contributed so much, that they joined in the general demand for “the good old laws of Edward the Confessor.” Even so early as the reign of the Conqueror himself, there was a royal acknowledgment of franchises or liberties, and the charters, renewals, or confirmations granted by subsequent kings are inextricably numerous. Coke, without exhausting them, counts thirty-two. The Great Charter of King John (1215) has so conspicuous a place in history, not only from its comparative completeness, but because it was exacted by men with arms in their hands from a resisting king, and was thus an enforced stipulation likely to be rigidly interpreted, instead of a concession carelessly conceded and readily forgotten. A great many of the stipulations of the Great Charter refer to feudal exactions now so long obsolete that the restraints on them cease to be intelligible; and those who have looked at the “palladium of British liberties,” expecting to find in it high-sounding definitions of freedom like those in modern Continental declarations of right, have been much disappointed.

Among the other concessions of a less comprehensive nature, the Charter of the Forest was deemed next in importance to Magna Charta. In nothing was the selfish rapacity of the Norman monarchs more conspic-

uous than in their relentless clearings of great districts of country for the establishment of forests or chases, where the sanctity of their field-sports was protected with a strict legal severity not conceded to the protection of ordinary property and personal freedom. The early use of the word "charter," as a foundation of constitutional liberties, led to its being applied on various occasions to fundamental constitutional codes or rules of government adopted by various nations. In its most general signification, it is nearly synonymous with *deed* and *instrument*, and is applied to almost any formal writing, in evidence of a grant, contract, or other transaction between man and man. In another sense it signifies an instrument by which powers and privileges are conferred by the State on a select body of persons for a special object. In the United States cities and other municipalities act under charters issued by the State legislatures.

CHARTER-PARTY, a written or partly written and partly printed contract, by which a ship is let or hired for the conveyance of goods on a specified voyage, or for a definite period. By the terms of this contract the owners declare the ship to be "tight, stanch, strong, and every way fitted for the voyage;" and they are accordingly liable in damages to the merchant or charterer, if the ship be unseaworthy, or if they fail to provide her with any necessary equipment or clearances. The ship-owners are further bound to have the vessel ready to receive her cargo at the stipulated time; and they are responsible for the proper stowage of the goods received on board. On the loading being completed, the vessel must proceed without delay to her appointed destination; and should she unnecessarily deviate from the regular course of the voyage (a proceeding which might vitiate the merchant's insurances), the owners are liable in damages to the merchant. On arrival at the port of destination the goods are to be delivered "agreeably to bills of lading," the responsibility of the shipowners in this particular being limited by the usual exception against loss or damage by "the act of God, the public enemy, fire, and all and every other dangers and accidents of the seas, rivers, and navigation of whatever nature and kind soever." The freight payable to the shipowners is the amount specified in the charter-party, which may in certain cases be either more or less than the rates mentioned in the bills of lading,—the charterer having usually the right of sub-letting the ship in part or in whole to other shippers, on terms agreed upon between themselves, which it is customary to specify in their separate bills of lading, without prejudice to the original agreement. In such cases, however, the shipowners' lien on the goods for freight extends only to the amount specified in the bills of lading; and they must look to the charterer personally for any further sum which may be due to them.

CHARTIER, ALAIN, the most distinguished French man of letters during the 15th century, was born at Bayeux. The date of his birth is not known, but M. Vallet de Viriville places it between 1380 and 1390. After a complete course of study at the university of Paris, he is supposed to have entered the service of Charles VI., who is said to have charged him with important missions. After this, however, he is known to have followed the fortunes of Charles the Dauphin, afterwards Charles VII., and to have been employed by that prince, about 1420, in the triple capacity of clerk, notary, and financial secretary. He is also said to have held a prebend in the cathedral church of Nôtre-Dame de Paris, of which he was likewise arch-deacon, and to have been sent as envoy to the Scottish court.

There is some analogy between the fate of Alain Chartier and that of Ronsard. Both enjoyed an extra-

ordinary reputation during their lives, and after death both were neglected and forgotten.

CHARTISM was a movement for radical reform in English politics, which originated in 1838, reached its culminating point in 1858, and collapsed in the same year; it took its name from the "People's Charter," or "National Charter" the document in which the scheme of reform was embodied. The Reform Bill of 1832 left a large class of the population, especially the working-men, dissatisfied. Accordingly, in 1838, after an unsuccessful attempt to initiate a scheme of more radical reform in the House of Commons, six of the most advanced members of the House had a consultation with the deputies of the "Workingmen's Association," the result being the appearance of the People's Charter, which embodied in the six following points the programme of their party:—(1) annual parliaments; (2) universal suffrage; (3) vote by ballot; (4) abolition of the property qualification for membership of the House of Commons; (5) payment of members; (6) equal electoral districts. The most influential of the six members of the House who took part in the drawing up of the charter was O'Connell, and the methods adopted for the propagation of their views were those practiced by the great agitator in his legislation for Ireland.

Monster meetings were held, at which seditious language was occasionally spoken, and slight collisions with the military took place. Petitions of enormous size, signed in great part with fictitious names, were presented to Parliament; and a great many newspapers were started, of which the *Northern Star*, conducted by Feargus O'Connor, the active leader of the movement, had a circulation of 50,000. In 1840 the Chartist movement was still further organized by the inauguration at Manchester of the National Charter Association, which rapidly became powerful, being the head of about 400 sister societies, which are said to have numbered 40,000 members. Some time after, efforts were made towards a coalition with the more moderate radicals, but these failed; and a land scheme was started by O'Connor, which prospered for a few years. In 1844 the fanatical spirit of some of the leaders was only too well illustrated by their attitude towards the Anti-Corn-Law League. O'Connor, especially, entered into a public controversy with Cobden and Bright, in which he was worsted; and he even endeavored to defeat the purpose of the League. But it was not till 1848, during a season of great suffering among the working classes, and under the influence of the revolution at Paris, that the real strength of the Chartist movement was discovered, and the prevalent discontent became known. Early in March disturbances occurred in Glasgow which required the intervention of the military, while in the manufacturing districts all over the West of Scotland the operatives were ready to rise, in the event of the main movement succeeding. Some agitation, too, took place in Edinburgh and in Manchester, but of a milder nature; in fact, while there was a real and wide-spread discontent, men were indisposed to resort to decided measures. The principal scene of intended Chartist demonstration was London. An enormous gathering of half a million was announced for the 10th April on Kennington Common, from which they were to march on the House of Parliament to present a petition signed by nearly six million names, in order by this imposing display of numbers to secure the enactment of the six points. Probably some of the more violent members of the party thought to imitate the Parisian mob by taking power entirely into their own hands.

The announcement of the procession excited great alarm, and the most decided measures were taken by

the authorities to prevent a rising. The procession was forbidden. The military was called out under the command of the Duke of Wellington, and by him concealed near the bridges and other points where the procession might attempt to force its way. Even the Bank and other public buildings were put in a state of defence, and special constables, to the number, it is said, of 170,000, were enrolled, one of whom was destined shortly after to be the emperor of the French. After all these gigantic preparations on both sides the Chartist demonstration proved to be a very insignificant affair. Instead of half a million, only about 50,000 assembled on Kennington Common, and their leaders, Feargus O'Connor and Ernest Jones, shrank from the responsibility of braving the authorities by conducting the procession to the Houses of Parliament. The monster petition was duly presented, and scrutinized, with the result that the number of signatures was found to have been grossly exaggerated, and that the most unheard of falsification of names had been resorted to. Thereafter the movement specially called Chartism soon died out. The return of national prosperity relieved the working classes of their most pressing grievances; and subsequent legislative changes have in great measure removed the causes that existed for discontent among the classes which mainly supported the charter.

CHARTRES, the chief town of the department of Eure-et-loir, 55 miles south-west from Paris by railway, stands on a slope skirted by the River Eure, which flows partly within and partly beyond the ramparts. It was founded in the 11th century by Bishop Fulbert on the site of an earlier church destroyed by fire in 1020. In 1194 another conflagration laid waste the new building then hardly completed; but clergy and people set zealously to work, and the main part of the present structure was finished by 1240. Though there have been numerous minor additions and alterations since that time, the general character of the cathedral is unimpaired. The upper woodwork was consumed by fire in 1830, as well as the beautiful belfry of the old tower, but the rest of the building was saved; and it still preserves some of its magnificent stained-glass windows of the thirteenth century. Population (1889), 20,000.

CHARTREUSE, or more usually, to distinguish it from other establishments of the order, LA GRANDE CHARTREUSE, a famous Carthusian monastery of France, in the department of Isère, situated about 14 miles north of Grenoble, at a height of 4268 feet above the level of the sea, in one of the upper valleys of a group of calcareous mountains, near the sources of the Guiers Mort and the Guiers Vif, two tributaries of the Rhone. The settlement was originally founded in 1084, and derived its name from a small village a short distance to the south-east, which was formerly known simply as Chartreuse or *Cartusia*, but is now distinguished as Saint Pierre de Chartreuse. There is nothing very striking or beautiful about the architecture of the Chartreuse, — its principal features being the high roofs of dark slate and the cross-surmounted turrets. Within the buildings there are four halls for the reception of monks from the Carthusian provinces of France, Italy, Burgundy, and Germany, about sixty cells for the resident brethren, a church of the 15th and 16th centuries, several chapels, and a library, which before the Revolution contained a valuable collection both of books and manuscripts. A short distance from the main building is the infirmary, now set apart under the direction of the sisters of charity for the entertainment of female visitors. Since the revolutionary confiscation of 1793 the domain of Chartreuse has belonged to the state, and the monks, who were permitted to return to the monastery in 1816, pay a nominal rent for the use of the buildings and the right

of pasturage, and have no longer any property in the neighboring forests, which are in great measure due to their predecessors. Their revenue is augmented by the sale of various pharmaceutical preparations known as the Elixir, the Boule d'Acier (a mineral paste or salve), and the Chartreuse. In the manufacture of the last — a famous aromatic liqueur — carnations, absinthium, and the young buds of the pine tree are employed; there are three kinds — a green, a yellow, and a white — differing in degree of strength. The monks are distinguished by an active benevolence, the effects of which are visible in all the surrounding villages, where churches, schools, hospitals, and similar institutions have been erected and maintained at their expense.

CHARYBDIS. See SCYLLA AND CHARYBDIS.

CHASE, SALMON PORTLAND (1808–1873), an American statesman, was born in Cornish, New Hampshire, on the 13th of January, 1808. After graduating with distinction at Dartmouth College, at the age of eighteen he opened a classical school at Washington and commenced the study of law under William Wirt. In 1830 he was admitted to the bar; and he soon after gained for himself considerable reputation by a compilation of the statutes of Ohio. Throughout his whole career he was a consistent and vigorous opponent of slavery. From the first he was willing to risk his hopes of professional success by undertaking the defence of runaway slaves or of those who assisted their escape; and he boldly argued that slavery was merely an institution of the individual states, to which the national Government could not extend its sanction. He took a prominent part in the anti-slavery convention which met at Columbus in 1841, in the first "National Liberty Convention" of 1843, in the "Southern and Western Liberty Convention" of 1845, and in the second "National Liberty Convention" of 1847. He also presided over the "National Convention" of 1848, which nominated Van Buren for president and Adams for vice-president. In 1849 he became a member of the senate; and in 1855 he was elected governor of Ohio, in which position he was so popular that he was reelected, two years after, by an extraordinarily large number of votes. He was also three times a candidate for the presidency, though he never attained that dignity.

On the accession of Lincoln to the presidency, in March, 1861, Chase became secretary of the treasury; and he fulfilled the duties of this most important and difficult post with the greatest energy till June, 1864. Still, notwithstanding his ability and zeal, it cannot be said that the measures he adopted were the best even in the extremely difficult circumstances in which he was placed. Though he appears to have apprehended some of the evil consequences likely to arise from the creation of inconvertible notes, he argues that their issue was necessary on the ground that it would increase the loanable capital of the country, while, in fact, employed as it was by Government in defraying expenses, it could have no such effect. At first Chase contemplated raising a large sum by direct taxation; but this course Congress refused to pursue. He was forced, therefore, to resort to a considerable increase of the taxes on imports, to issues of an inconvertible paper currency, and to enormous loans, which were contracted upon unnecessarily expensive terms. The interest was, in reality, about double its nominal amount, owing to the fact that it was paid in gold; and, beside this, a considerable loss was sustained through the arrangement by which the debt contracted in depreciated paper was discharged in coin.

It was under his management that Congress passed the Banking Law of February, 1863, which, as amended

in June, 1864, is still in force (see BANKING). It was at that time useful in two ways; for it procured for the Government, in its necessity, a considerable loan from the banks, and it replaced the notes of the banks, which had lost their credit through frequent failures, by notes which possessed the Government guarantee. Its great recommendation at present is that it secures the trustworthiness of the note currency.

In December of the year in which he resigned the secretaryship of the treasury, Chase was appointed Chief Justice of the Supreme Court of the United States, and in this capacity he had to undertake the responsibility of superintending the trial of President Johnson. But his health was now broken, and his old activity was no longer possible. In June, 1870, he suffered a shock of apoplexy, and on May 7th, 1873, he died at New York.

CHASIDIM (Pietists), this name anciently denoted a whole class of Jewish sects. After the Babylonish captivity, the Jews, with regard to their observance of the law of Moses, were divided into two classes—*Chasidim* and *Zadikim*.

CHASSE, music composed in imitation of the chase, and performed chiefly by horns, occasionally combined with other wind instruments.

CHASSE, DAVID HENDRIK, BARON, born in Tiel, March 18, 1765; became a lieutenant in 1781, and captain in 1787. As lieutenant-general of the Dutch forces in 1815, he added to his laurels on the field of Waterloo. After the peace he was made Governor of Antwerp in 1830, and defended it against the united Belgians and French from November 29 till December 23, 1832, when he was forced to surrender. He died in May, 1849.

CHASSEURS (Fr. hunters) is a name used for two important forces in the French army. The mounted chasseurs (*chasseurs-à-cheval*) are a body of light cavalry designed for service in advance or on the flanks of the army. The infantry chasseurs (*chasseurs-à-pied*) are a light infantry force, in many respects corresponding with the cavalry chasseurs, and like them intended for detached service.

CHASTELAIN, GEORGES (1403–75), called *L'Adventurous*, the celebrated Burgundian chronicler, was born at Alost in Flanders. When only seven years old he began the study of letters. This, however, he abandoned to become a soldier, serving first of all as a squire. Particularly favored by Philip the Good, duke of Burgundy, he quitted the career of arms toward 1443, and devoted himself to the service of that prince, who made him successively pantler, orator, and finally grand chronicler of the house of Burgundy.

CHASTELARD, PIERRE BOSCOBEL DE, a French poet whose name is inseparably connected with that of Mary Queen of Scots, was born in Dauphiné, and was a scion of the house of Bayard. From the service of the Constable Montmorency, Chastelard, then a page, passed to the household of Marshal Damville, whom he accompanied in his journey to Scotland in escort of Mary (1561). He returned to Paris in the marshal's train, but left for Scotland again shortly afterward, bearing letters of recommendation to Mary from his old protector, Montmorency, and the *Regrets* addressed to the ex-queen of France by Pierre Ronsard, his master in the art of song. He is also understood to have undertaken the charge, for transmission to the poet, of the service of plate with which Mary rewarded him. But he had fallen in love with the queen, who is said to have encouraged his passion. Copies of verse passed between them; she lost no occasion of showing herself partial to his person and conversation. The young man hid himself under her bed, where he was discov-

ered by her maids of honor. Mary pardoned the offence, and the old familiar terms between them were resumed. Chastelard was so rash as again to violate her privacy. He was discovered a second time, seized, sentenced, and hanged the next morning. He met his fate valiantly and consistently, reading on his way to the scaffold, his master's noble *Hymne de la Mort*.

CHATEAUBRIAND, FRANCOIS RENÉ VISCOUNT DE, the most brilliant representative of the reaction against the ideas of the French Revolution, and the most conspicuous figure in French literature during the First Empire, was born at St. Malo, September 4, 1768. He received his education at Dol and Rennes, and after declining to enter the church from an absence of vocation, obtained a commission in the army when on the point of proceeding to try his fortune in India (1788).

His thirst for distinction, further excited by the political convulsions of the following year, found vent in a romantic scheme for the discovery of the North West Passage, in pursuance of which he departed for America in 1790. The passage was not found or even attempted, but the adventurer returned enriched with the to him more important discovery of his own powers and vocation, conscious of his marvelous faculty for the delineation of nature, and stored with ideas and imagery, the material of much of his future work. His return coincided with the execution of Louis XVI. Chateaubriand, a Breton and a soldier, could not do otherwise than throw himself into the ranks of the emigrants. After the failure of the duke of Brunswick's invasion he retired to England, where he lived in obscurity for several years, gaining an intimate acquaintance with English literature, and elaborating *The Natchez*, a prose epic designed to portray the life of the Red Indian tribes, and inspired by reminiscences of his American travels. Two brilliant episodes of this work, *Atala* and *René*, have acquired universal renown; but the work as a whole, to say nothing of the unreality of its pictures of savage life, belongs to that unfortunate compromise between the forms of prose and poetry in a manner imposed upon the French language by the penury of its poetic diction, but incapable of the perfection of either poetry or prose. Chateaubriand's first publication, however, was the *Essay on Revolutions* (1797). In this remarkable work, which the author subsequently retracted, but took care not to suppress, he appears as a mediator between royalist and revolutionary ideas, a free-thinker in religion, and in philosophy imbued with the spirit of Rousseau. A great change in his views was, however, at hand, induced, as he would have us believe, by the death of his mother in the same year. It is certain that upon his restoration to his country three years subsequently, the *Genius of Christianity* was already in an advanced state. Before publishing it, however, he determined to make an essay with an episode of his romance. *Atala*, or *The Loves of Two Savages*, appeared in 1801, and immediately raised the author to the summit of literary distinction. Exquisite style, impassioned eloquence, and glowing descriptions of nature, gained indulgence for the incongruity between the rudeness of the personages and the refinement of the sentiments, and for the distasteful blending of prudery with sensuousness; the latter was indeed conformable to the example of the author's models and predecessors. Alike in its merits and defects, the piece is a more emphatic and highly-colored "Paul and Virginia;" it has been justly said that Bernardin Saint Pierre models in marble and Chateaubriand in bronze.

Encouraged by his success, the author resumed his *Genius of Christianity*, which appeared in the following

year, just upon the eve of Napoleon's reëstablishment of the Catholic religion, for which it thus almost seemed to have prepared the way. No coincidence could have been more opportune, and Chateaubriand might almost be pardoned for esteeming himself the counterpart of Napoleon in the intellectual order, as he certainly did. In composing his work he had borne in mind the admonition of his friend Joubert, that the public would care very little for his erudition and very much for his eloquence. It is consequently an inefficient production from the point of view of serious argument. The considerations derived from natural theology are but commonplaces rendered dazzling by the magic of style; and the parallels between Christianity and antiquity, especially in arts and letters, are at best ingenious sophistries. The less polemical passages, however, where the author depicts the glories of the Catholic liturgy and its accessories, or expounds its symbolical significance, are splendid instances of the effect produced by the accumulation and judicious distribution of particulars gorgeous in the mass, and individually treated with the utmost refinement of detail. Taken altogether, the work is a masterpiece of literary art, and its immediate effect was very considerable. It admirably subserved the statecraft of Napoleon, who appointed the writer attaché at Rome, and when his insubordinate and intriguing spirit compelled his recall, transferred him as envoy to the canton of the Valais. The murder of the duke of Enghien took place during his absence on this mission. Chateaubriand, to his honor, immediately resigned his post, and subsequently manifested great courage in his indirect censures of Napoleon in a journal of which he had become proprietor, and which was ultimately suppressed. Ere this he had departed on a pilgrimage to Jerusalem, undertaken, as he subsequently acknowledged, less in a devotional spirit than in quest of new imagery, and in deference to the wishes of a lady friend. The journey produced (1811) a record of travel distinguished by his habitual picturesqueness, and also inspired his prose epic of *The Martyrs*, published two years previously. This work may be regarded as the argument of the *Genius of Christianity* thrown into an objective form. Moore's *Epicurean*, and the more ambitious passages of Bulwer's earlier romances, may convey an adequate notion of it to the merely English reader. As in the *Epicurean*, the professed design is the contrast between Paganism and Christianity, which fails of its purpose partly from the absence of real insight into the genius of antiquity, and partly because the heathen are the most interesting characters, after all. Two years previously had appeared *René* another detached episode of *The Natchez*, and perhaps Chateaubriand's most characteristic production. *The Natchez*, of which *René* was to have formed an episode, was not published until 1826, at which time also appeared the beautiful tale of *The Last of the Abencerrages*, written about 1809, and, as the author asserts, withheld from publication on account of the Peninsular War. With this composition Chateaubriand's career as an imaginative writer is closed; and we have henceforth chiefly to consider him as a politician. His character in this point of view may be comprised in a sentence; he was equally formidable to his antagonists when in opposition and to his friends when in office.

His pamphlet, *Bonaparte and the Bourbons*, published in 1814, while the fate of Napoleon yet trembled in the balance, was as opportune in the moment of its appearance of the *Genius of Christianity*, and produced a hardly less signal effect. Louis XVIII. declared that it had been worth a hundred thousand men to him. Chateaubriand was called to his councils, accompanied

him to Ghent during the Hundred Days, and for a time associated himself with the excesses of the royalist reaction. Political bigotry, however, was not among his faults; he gradually drifted into liberalism and opposition, and upon a change of ministry, obtained the London embassy, from which he was transferred to represent his country at the Congress of Verona. He here made himself mainly responsible for the iniquitous invasion of Spain,—an expedition undertaken, as he himself admits, with the puerile idea of restoring French prestige by a military parade. He next received the portfolio of foreign affairs, which he soon lost by his desertion of his colleagues on the question of a reduction of the interest on the national debt. After another interlude of effective pamphleteering in opposition, he accepted the embassy to Rome under the Martignac administration, resigned it at Prince Polignac's accession to office, and on the downfall of the elder branch of the Bourbons, made one last extremely brilliant but inevitably fruitless protest from the tribune in defence of the principle of legitimacy. During the first half of Louis Philippe's reign he was still active with his pen, and was regarded as the most efficient champion of the exiled dynasty, but as years increased upon him, and the prospect of his again performing a conspicuous part diminished, he relapsed into an attitude of complete discouragement, and contributed to chill the ardor of his own party. His narrative of his share in the Congress of Verona, the *Life of Rancé*, and his translation of Milton, belong to the writings of these later days. He expired on July 4, 1848, wholly exhausted and thoroughly discontented with himself and the world, but affectionately tended by his old friend Madame Récamier, herself deprived of sight. His remains were interred in Grand Bey, a lonely islet off the coast of Brittany. Shortly after his death his memory was powerfully revived, and at the same time exposed to much adverse criticism, by the publication, with sundry mutilations as has been suspected, of his celebrated *Mémoires d'Outre-Tombe*, the composition of which had occupied him at intervals during the greater part of his life. These memoirs undoubtedly reveal his vanity, his egotism, the frequent hollowness of his professed convictions, and his incapacity for sincere attachment, except, perhaps, in the case of Madame Récamier. They abound, on the other hand, with beauties of the first order, and much of the rough treatment they have experienced is attributable to the animosity of party. Their principal literary defect is the frequent encroachment of the historical element upon the autobiographical, the writer's exaggerated estimate of his own consequence leading him to allow a disproportionate space to transactions in which he had in fact but little share.

CHÂTEAUBRIANT, a town in France, at the head of an arrondissement in the department of Loire Inférieure, on the left bank of the Chère, a tributary of the Vilaine, 35 miles N.N.E. of Nantes. Pop. 5,000.

CHÂUTEAUDUN, a town of France, capital formerly of the countship of Dunois, and now of an arrondissement in the department of Eure-et-Loir, 28 miles S.S.W. of Chartres. Population, 6,000.

CHÂTEAU-GONTHIER, a town of France, at the head of an arrondissement in the department of Mayenne, on the right bank of the Mayenne river, here crossed by a stone bridge, 17 miles S.S.E. of Laval.

CHÂTEAUROUX, a town of France, capital of the department of Indre, is situated in a fine plain on the left bank of the Indre, 90 miles by rail S.W. of Orleans. Raised to the rank of a countship in 1497, and to that of duchy in 1616, it finally passed into the possession of Louis II. of Bourbon, prince of Condé, and the castle

served for the incarceration of his wife for twenty-three years. General Bertrand was born in the castle in 1773, and his statue adorns the Place Sainte Hélène. Population of the town, 16,858.

CHÂTEAU-THIERRY, a town of France, at the head of an arrondissement in the department of Aisne, on the right bank of the Marne, and connected with an extensive suburb on the opposite bank by a fine stone bridge of three arches. Population of the town, 5347; of the commune, 6623.

CHÂTELLERAULT, a town of France, at the head of an arrondissement in the department of Vienne, on the right bank of the Vienne, here crossed by a handsome bridge, which connects it with the suburb of Châteauneuf on the opposite side of the river, 24 miles N.N.E. of Poitiers. There is a large trade in wines, dried fruits, slate, iron, corn, hemp, and timber. Population, 13,363.

CHATHAM, a town of England, in the county of Kent, on the south side of the Medway, about 15 miles from its junction with the estuary of the Thames, and 27 miles east of London. Numerous Roman remains, both architectural and domestic, have been discovered at Chatham and Brompton; but they appear to have belonged to the Roman city of Rochester. Till the reign of Elizabeth the place was a mere insignificant village; but before 1588 the queen established the first dockyard on the site of what is now called the Ordnance Wharf, and erected Castle Upnor on the opposite bank of the river for its defence. The situation was changed in the following reign, and under the Charleses extensive additions were made. Population, 50,000.

CHATHAM, the chief town of Kent county, Ontario, Canada, is situated on the river Thames, sixty-eight miles southwest of London, Ontario. It is a flourishing business town of nearly 10,000 inhabitants, and contains five banks, ten churches, fine county and municipal buildings, schools, printing offices, and many handsome residences. The manufacturing interests include saw mills, planing mills, grist mills, foundries, breweries, distilleries, machine shops, soap and candle works. The exports are grain, pork, lumber and staves.

CHATHAM, a port of entry of Northumberland county, New Brunswick, is situated on the Miramichi river, and is a thriving shipping town, with a large trade in lumber and fish. It has a fine harbor, handsome public buildings, a Catholic cathedral, churches, printing offices, foundries and factories. Population, 5,000.

CHATHAM, WILLIAM PITT, FIRST EARL OF, one of the greatest of English statesmen and parliamentary orators, was born at Westminster on the 15th November, 1708. He was the son of Robert Pitt, and grandson of the governor of Madras, known as Diamond Pitt.

Of the early life of William Pitt comparatively little is known. He was educated at Eton, and in January, 1726, was entered as a gentleman commoner at Trinity College, Oxford. There is evidence that he was an extensively read, if not a minutely accurate, classical scholar; and it is interesting to know that Demosthenes was his favorite author, and that he diligently cultivated the faculty of expression by the practice of translation and re-translation. An hereditary gout, from which he had suffered even during his school-days, compelled him to leave the university without taking his degree, in order to travel abroad. He spent some time in France and Italy; but the disease proved intractable, and he continued subject to attacks of growing intensity at frequent intervals till the close of his life. In 1727 his father had died, and on his return home it was necessary for him, as the younger son, to choose a profession. Having chosen the army, he obtained through the interest of his

friends a cornet's commission in the dragoons. But his military career was destined to be short. His elder brother Thomas having been returned at the general election of 1734 both for Oakhampton and for Old Sarum, and having preferred to sit for the former, the family borough fell to the younger brother by the sort of natural right usually recognized in such cases. Accordingly, in January, 1735, William Pitt entered Parliament as member for Old Sarum. Attaching himself at once to the formidable band of discontented Whigs known as the Patriots, whom Walpole's love of exclusive power had forced into opposition, he became in a very short time one of its most prominent members. His maiden speech was delivered in April, 1736, in the debate on the congratulatory address to the king on the marriage of the Prince of Wales. The occasion was one of compliment, and there is nothing striking in the speech as reported; but it served to gain for him the attention of the house when he presented himself, as he soon afterwards did, in debates of a party character. So obnoxious did he become as a critic of the Government, that Walpole thought fit to punish him by procuring his dismissal from the army. Some years later he had occasion vigorously to denounce the system of cashiering officers for political differences, but with characteristic loftiness of spirit he disdained to make any reference to his own case. The loss of his commission was soon made up to him. The heir to the throne, as has usually been the case in the house of Hanover, if not in reigning families generally, was the patron of the opposition, and the ex-cornet became groom of the bed-chamber to the Prince of Wales. In this new position his hostility to the Government did not, as may be supposed, in any degree relax.

He had all the natural gifts an orator could desire,—a commanding presence, a graceful though somewhat theatrical bearing, an eye of piercing brightness, and a voice of the utmost flexibility. His style, if occasionally somewhat turgid, was elevated and passionate, and it always bore the impress of that intensity of conviction which is the most powerful instrument a speaker can have to sway the convictions of an audience. It was natural, therefore, that in the series of stormy debates, protracted through several years, that ended in the downfall of Walpole, his eloquence should have been one of the strongest of the forces that combined to bring about the final result. Specially effective, according to contemporary testimony, were his speeches against the Hanoverian subsidies, against the Spanish convention in 1739, and in favor of the motion in 1742 for an investigation into the last ten years of Walpole's administration. It must be borne in mind that the reports of these speeches which have come down to us were made from hearsay, or at best from recollection, and are necessarily therefore most imperfect. The best known specimen of Pitt's eloquence, his reply to the sneers of Horace Walpole at his youth and declamatory manner, which has found a place in all handbooks of elocution published during the last hundred years, is evidently, in form at least, the work, not of Pitt, but of Dr. Johnson, who furnished the report to the *Gentleman's Magazine*. Probably Pitt did say something of the kind attributed to him, though even this is by no means certain. In view of Johnson's repentant admission that he had often invented not merely the form but the substance of entire debates.

In 1742 Walpole was at last forced to succumb to the long continued attacks of the opposition, and was succeeded as prime minister by the earl of Wilmington, though the real power in the new Government was divided between Carteret and the Pelhams. Pitt's conduct on the change of administration was open to grave cen-

sure. The relentless vindictiveness with which he insisted on the prosecution of Walpole, and supported the bill of indemnity to witnesses against the fallen minister, was in itself not magnanimous; but it appears positively unworthy when it is known that a short time before Pitt had offered, on certain conditions, to use all his influence in the other direction. Possibly he was embittered at the time by the fact that, owing to the strong personal dislike of the king, caused chiefly by the contemptuous tone in which he had spoken of Hanover, he did not by obtaining a place in the new ministry reap the fruits of the victory to which he had so largely contributed. It was with no very good grace that the king at length consented to give Pitt a place in the Government, although the latter did all he could to ingratiate himself at court, by changing his tone on the questions on which he had made himself offensive. In June, 1746, he was promoted to the office of paymaster-general, which gave him a place in the Privy Council, though not in the Cabinet. Here he had an opportunity of displaying his public spirit and integrity in a way that deeply impressed both the king and the country.

The administration formed in 1746 lasted without material change till 1754. It would appear from his published correspondence that Pitt had a greater influence in shaping its policy than his comparatively subordinate position would in itself have entitled him to. His conduct in supporting measures, such as the Spanish treaty and the Continental subsidies, which he had violently denounced when in opposition, had been much criticised.

His one great object was first to gain office, and then to make his tenure of office secure by conciliating the favor of the king. The entire revolution which much of his policy underwent in order to effect this object bears too close a resemblance to the sudden and inexplicable changes of front habitual to placemen of the tadpole stamp to be altogether pleasant to contemplate in a politician of pure aims and lofty ambition. Humiliating is not too strong a term to apply to a letter in which he expresses his desire to "efface the past by every action of his life," in order that he may stand well with the king.

In 1754 Henry Pelham died, and was succeeded at the head of affairs by his brother, the duke of Newcastle. To Pitt the change brought no advancement, and he had thus an opportunity of testing the truth of the description of his chief given by Sir Robert Walpole, "His name is treason." But there was for a time no open breach. Pitt continued at his post; at the general election which took place during the year he even accepted a nomination for the duke's pocket borough of Aldborough. He had sat for Seaford since 1747. When Parliament met, however, he was not long in showing the state of his feelings. Ignoring Sir Thomas Robinson, the political nobody to whom Newcastle had entrusted the management of the Commons, he made frequent and vehement attacks on Newcastle himself, though still continuing to serve under him. In this strange state matters continued for about a year. At length, just after the meeting of Parliament in November, 1751, Pitt was dismissed from office, having on the debate on the address spoken at great length against a new system of Continental subsidies, proposed by the Government of which he was a member. Fox, who had just before been appointed Secretary of State, retained his place, and though the two men continued to be of the same party, and afterwards served again in the same Government, there was henceforward a rivalry between them, which makes the celebrated opposition of their illustrious sons seem like an inherited quarrel.

Another year had scarcely passed when Pitt was again

in power. The inherent weakness of the Government, the vigor and eloquence of his opposition, and a series of military disasters abroad combined to rouse a public feeling of indignation which could not be withstood, and in December, 1756, Pitt, who now sat for Oakhampton, became Secretary of State, and leader of the Commons under the premiership of the duke of Devonshire. He had made it a condition of his joining any administration that Newcastle should be excluded from it, thus showing a resentment which, though natural enough, proved fatal to the lengthened existence of his Government. With the king unfriendly, and Newcastle, whose corrupt influence was still dominant in the Commons, estranged, it was impossible to carry on a Government by the aid of public opinion alone, however emphatically that might have declared itself on his side. In April, 1757, accordingly, he found himself again dismissed from office on account of his opposition to the king's favorite Continental policy. But the power that was insufficient to keep him in office was strong enough to make any arrangement that excluded him impracticable. The public voice spoke in a way that was not to be mistaken. Probably no English minister ever received in so short a time so many proofs of the confidence and admiration of the public, the capital and all the chief towns voting him addresses and the freedom of their corporations. From the political deadlock that ensued relief could only be had by an arrangement between Newcastle and Pitt. After some weeks' negotiation, in the course of which the firmness and moderation of "the Great Commoner," as he had come to be called, contrasted favorably with the characteristic tortuosities of the crafty peer, matters were settled on such a basis that, while Newcastle was the nominal, Pitt was the virtual head of the Government. On his acceptance of office he was chosen member for Bath.

This celebrated administration was formed in June, 1757, and continued in power till 1761. During the four years of its existence it has been usual to say that the biography of Pitt is the history of England, so thoroughly was he identified with the great events which make this period, in so far as the external relations of the country are concerned, one of the most glorious in her annals. A detailed account of these events belongs to history; all that is needed in a biography is to point out the extent to which Pitt's personal influence may really be traced in them. It is scarcely too much to say that, in the general opinion of his contemporaries, the whole glory of these years was due to his single genius; his alone was the mind that planned, and his the spirit that animated the brilliant achievements of the British arms in all the four quarters of the globe. Posterity, however, has taken the liberty of revising this enthusiastic verdict, and has placed his renown on what seems a truer and therefore a firmer basis. It has recognized more fully than his contemporaries the independent genius of those who, as subordinates or allies, carried out his purposes. The heroism of Wolfe would have been irrepressible, Clive would have proved himself "a heaven-born general," and Frederick the Great would have written his name in history as one of the most skilful strategists the world has known, whoever had held the seals of office in England. But Pitt's relation to all three was such as to entitle him to a large share in the credit of their deeds. It was his discernment that selected Wolfe to lead the attack on Quebec, and gave him the opportunity of dying a victor on the heights of Abraham. He had personally less to do with the successes in India than with the other great enterprises that shed an undying lustre on his administration; but his generous praise in Parliament stimulated the genius of Clive, and the forces

that acted at the close of the struggle were animated by his indomitable spirit. Frederick the Great's Seven Years' War might well have been another Thirty Years' War, if Pitt had not furnished him with an annual subsidy of £700,000, and in addition relieved him of the task of defending Western Germany against France.

Contemporary opinion was, of course, incompetent to estimate the permanent results gained for the country by the brilliant foreign policy of Pitt. It has long been generally agreed that by several of his most costly expeditions nothing was won but empty glory. It has even been said that the only permanent acquisition that England owes directly to him is her Canadian dominion; and, strictly speaking, this is true, it being admitted that the campaign by which the Indian empire was virtually won was not planned by him, though brought to a successful issue during his ministry. But material aggrandisement, though the only tangible, is not the only real or lasting effect of a war policy. More may be gained by crushing a formidable rival than by conquering a province. The loss of her Canadian possessions was only one of a series of disasters suffered by France, which radically affected the future of Europe and the world. Deprived of her most valuable colonies both in the East and in the West, and thoroughly defeated on the Continent, her humiliation was the beginning of a new epoch in history. The victorious policy of Pitt destroyed the military prestige which repeated experience has shown to be in France as in no other country the very life of monarchy, and thus was not the least considerable of the many influences that slowly brought about the French Revolution. It effectually deprived her of the lead in the councils of Europe which she had hitherto arrogated to herself, and so has affected the whole course of Continental politics to the present time. It is such far-reaching results as these, and not the mere acquisition of a single colony, however valuable, that constitute Pitt's claim to be considered as, on the whole, the most powerful minister that ever guided the foreign policy of England.

The first and most important of a series of changes which ultimately led to the dissolution of the ministry was the death of George II. on the 25th October, 1760, and the accession of his grandson, George III. The new king had, as was natural, new counsellors of his own, the chief of whom, Lord Bute, was at once admitted to the cabinet as a secretary of state. Between Bute and Pitt there speedily arose an occasion of serious difference. The existence of the so-called family compact by which the Bourbons of France and Spain bound themselves in an offensive alliance against England having been brought to light, Pitt urged that it should be met by an immediate declaration of war with Spain. To this course Bute would not consent, and as his refusal was endorsed by all his colleagues save Temple, Pitt had no choice but to leave a cabinet in which his advice on a vital question had been rejected. On his resignation, which took place in October, 1761, the king urged him to accept some signal mark of royal favor in the form most agreeable to himself. Accordingly he obtained a pension of £3000 a year for three lives, and his wife, Lady Hester Grenville, whom he had married in 1754, was created Baroness Chatham in her own right. In connection with the latter gracefully bestowed honor it may be mentioned that Pitt's domestic life was a singularly happy one.

In the autumn of 1766 Rockingham was dismissed, and Pitt was entrusted by the king with the task of forming a Government entirely on his own conditions. The result was a cabinet, strong much beyond the average in its individual members, but weak to powerlessness in the diversity of its composition. Burke, in a memor-

able passage of a memorable speech, has described this "chequered and speckled" administration with great humor, speaking of it as "indeed a very curious show, but utterly unsafe to touch and unsure to stand on." Pitt chose for himself the office of Lord Privy Seal, which necessitated his removal to the House of Lords; and he became Viscount Pitt and Earl of Chatham.

By the acceptance of a peerage the great commoner lost at least as much and as suddenly in popularity as he gained in dignity. One of the earliest acts of the new ministry was to lay an embargo upon corn, which was thought necessary in order to prevent a dearth resulting from the unprecedentedly bad harvest of 1766. The measure was strongly opposed, and Lord Chatham delivered his first speech in the House of Lords in support of it. It proved to be almost the only measure introduced by his Government in which he personally interested himself. His attention had been directed to the growing importance of the affairs of India, and there is evidence in his correspondence that he was meditating a comprehensive scheme for transferring much of the power of the company to the Crown, when he was withdrawn from public business in a manner that has always been regarded as somewhat mysterious. It may be questioned, indeed, whether even had his powers been unimpaired he could have carried out any decided policy on any question with a cabinet representing interests so various and conflicting; but, as it happened, he was incapacitated physically and mentally during nearly the whole period of his tenure of office.

For many months things remained in the curious position that he who was understood to be the head of the cabinet had as little share in the government of the country as an unenfranchised peasant. As the chief could not or would not lead, the subordinates naturally chose their own paths and not his. The lines of Chatham's policy were abandoned in other cases besides the imposition of the export duty; his opponents were taken into confidence; and friends, such as Amherst and Shelburne, were dismissed from their posts. When at length in October, 1768, he tendered his resignation on the ground of shattered health, he did not fail to mention the dismissal of Amherst and Shelburne as a personal grievance.

Soon after his resignation a renewed attack of gout freed Chatham from the mental disease under which he had so long suffered. He had been nearly two years and a half in seclusion when, in July, 1769, he again appeared in public at a royal levee. It was not, however, until 1770 that he resumed his seat in the house of Lords. He had now almost no personal following, mainly owing to the grave mistake he had made in not forming an alliance with the Rockingham party. But his eloquence was as powerful as ever, and all its power was directed against the Government policy in the contest with America, which had become the question of all-absorbing interest. His last appearance in the House of Lords was on the 2d April, 1778, on the occasion of the duke of Richmond's motion for an address praying the king to conclude peace with America on any terms. In view of the hostile demonstrations of France the various parties had come generally to see the necessity of such a measure. But Chatham could not brook the thought of a step which implied submission to the "natural enemy" whom it had been the main object of his life to humble, and he declaimed for a considerable time, though with sadly diminished vigor, against the motion. After the duke of Richmond had replied, he rose again excitedly as if to speak, pressed his hand upon his breast, and fell down in a fit. He was removed to his seat at Hayes, where he died on the 11th May. With graceful unanimity all parties combined to

show their sense of the national loss. The Commons presented an address to the king praying that the deceased statesman might be buried with the honors of a public funeral, and voted a sum for a public monument, which was erected over his grave in Westminster Abbey. Soon after the funeral a bill was passed bestowing a pension of \$20,000 a year on his successors in the earldom. He had a family of three sons and two daughters, of whom the second son, William, was destined to add fresh luster to a name which is one of the greatest in the history of England. See PITT.

CHATHAM ISLANDS, a group in the Pacific, 560 miles east of New Zealand. It consists of three islands, a large one called Wari-Kauri, or Chatham Island, a smaller one, Rangi-Haute, or Pitt's Island, and a third, Rangatira, or South-east Island. There are also several small rocky islets.

CHÂTILLON-SUR-SEINE, a town of France, formerly the capital of the Pays de la Montagne, or Country of the Mountain, in Burgundy, and now at the head of an arrondissement in the department of Côte d'Or, is situated about 40 miles southwest of Troyes, on the Upper Seine. It is built on both sides of the river, and formerly consisted of two distinct portions, known as Chaumont and Bourg, each with its own fortifications. Population (1889), 5,000.

CHATSWORTH, the seat of the duke of Devonshire, one of the most splendid private residences in England, is situated in Derbyshire, on the River Derwent, $3\frac{1}{2}$ miles northeast of the village of Bakewell, and 8 miles west of the town of Chesterfield.

CHATTANOOGA, an important manufacturing city of Hamilton county, Tenn., is situated on the Tennessee river, at the foot of Lookout Mountain, 150 miles southeast of Nashville. The city was founded in 1836, when it was known as Ross's Landing, from the name of the famous Cherokee chief. In 1852 it was incorporated as a city under its present name. In 1860 the population was less than 3,000, and during the Civil war (see next article) the town formed the theater of great military operations. Up to 1880 the development of Chattanooga and the surrounding country was comparatively slow, but within the past decade the exploitation of the iron and coal mines of this section has rendered Chattanooga a great mining and manufacturing point. Nine lines of railroad enter the city, while the river furnishes transportation for vast amounts of heavy freight to Mississippi river and Gulf points. A narrow-gauge line affords access to the top of Lookout Mountain, and there are inclined railroads on this eminence and on Mission Ridge. Chattanooga has a fine system of sewerage, twenty-five miles of street railway (electric and horse power), water-works, gas and electric light, twelve hotels, an opera house and several public halls, thirty churches, and a first-class public school system. The taxable valuation of the city is nearly \$15,000,000; the city debt about \$200,000. Exports are chiefly of lumber, flour, iron ore, and cotton. There are some 200 manufacturing establishments, employing a capital of \$12,000,000 and 10,000 hands, with an annual product of \$14,000,000. Among the manufacturing industries are foundries, machine shops, cotton compresses, boiler shops, furnaces, rolling mills, planing and saw mills, brick and pipe works, stove works, wagon and carriage factories, fertilizer and phosphate factories, and manufactories of cane, nails, wire, brass, cigars, furniture, cement, artificial stone, powder, and the higher explosives. The population (1890) is 29,100. There are twelve banks (including four national banks).

CHATTANOOGA CAMPAIGN, THE. The city of Chattanooga, Tenn., was, in 1863, the bone of con-

tention between the Northern and Southern armies. The town was the key to the fertile country to the south, and its railroad connections made it invaluable to either side. After the battle of Stone River—won by Thomas and Miller—Rosecrans had remained for months inactive, until at last, in response to pressure from Washington, he began his preparations for a southern movement. His army was divided into three corps—those of Thomas, Crittenden, and McCook. At the outset the heavy rains and consequent rise in the rivers intersecting the country over which the Federal army moved necessarily rendered Rosecrans' movements somewhat slow. The army under his immediate command numbered about 60,000, while Burnside, who was supporting the army of the Cumberland by concurrent movements, was in command of 20,000 more. To oppose these two bodies of men Bragg had 50,000 men at Shelbyville and War Trace, while Buckner, at Knoxville, had 10,000 more. Rosecrans' first scheme was to turn the Confederate right. Bragg fell back, and destroyed all the lines of communication behind him, as he retreated toward Chattanooga. Rosecrans' movements were greatly impeded by the necessity of repairing the damage thus done, meantime suffering sharp criticism from the government at Washington. Bragg, too, came in for his share of dictation from his government, and when he had been reënforced by Generals Polk and Longstreet, he was peremptorily ordered to make a stand and fight. In obedience to these directions he posted Polk in and around Chattanooga, while Hardee held the Knoxville railroad. This disposition of the Confederate forces rendering Chattanooga too strong for direct attack, Rosecrans moved down the river and crossed on pontoons and a bridge which had been repaired, hoping thus to turn the Confederate left and gain the rear. Meantime the Federal left, under Crittenden, was ordered to make a direct attack on Chattanooga, while Thomas was to march upon Lafayette, and McCook was to threaten the Confederate communications with the South. On the 21st of August Crittenden was before Chattanooga and began a bombardment, and by the 1st of September the entire Union army was in the positions designated by Rosecrans. Bragg was not slow to take advantage of the fact that in the execution of these movements Rosecrans had separated his army and interposed between them difficult mountain country. In order to take advantage of this fact Bragg ordered Hill to march upon Lafayette, at the same time evacuating Chattanooga—intending to crush Rosecrans' left center before he could concentrate his forces. Rosecrans seemed wholly unaware of the intention of Bragg, believing him to be in retreat instead of contemplating an attack on the weakened Union center and left. Bragg made all the preparation possible for the success of his plans, and there is no doubt that had he received the coöperation of his subordinates he would have succeeded. As it was, his success was too near fruition to give the Union army anything but a disputed tactical victory. The delay caused by lack of coöperation gave Thomas and McCook opportunity to effect a junction of their forces—not a moment too soon. Crittenden had encountered the Confederates at Ringgold and had retreated across the Chickamauga, and on the 18th of September the entire Union army was placed in position on the right bank of the Chickamauga. On the night of the same day the army moved north by the flank, Thomas being in front and McCook to his right, the two commands overlapping. Crittenden was in the rear of the center, Gordon Granger's command being held in reserve at Rossville, while the other reserves were scattered about

in positions near Chattanooga. The Confederate forces lay on the other bank of the Chickamauga river that night. It had now become clear that the intention of Bragg was to attack the Union center, turn its left, and cut Rosecrans off from Chattanooga. Polk, with two divisions, held the Confederate right, while Hood occupied the left. The battle was begun by Bragg throwing 30,000 men across the Chickamauga and projecting and concentrating division after division on Thomas' front. At first Thomas' advance wavered and retreated, but, on the reserve coming up, the Confederates were in turn driven back. The attack was renewed by the Confederates, and Thomas was again forced back. At this juncture, General Hazen, by a well-directed artillery fire, forced the Confederates to retire. Another attack of less strength than the preceding was made, when night put an end to the conflict. During the darkness new disposition was made of both forces, and on the next morning (20th) at ten o'clock the entire Confederate right was thrown against Thomas, who now occupied the extreme left of the Union army. Reënforcements were hurried up to him, and in closing up from the right center a gap was left in the Federal front. Into this gap Longstreet poured his men, sending the right and center flying in the utmost confusion from the field, leaving Thomas on the left to his fate—which then seemed to be certain defeat. Rosecrans and his staff were swept from the field by the uncontrollable rout, and Thomas was left in command. Far to the rear, at the intersection of two roads—one leading to Chattanooga, and the other to Thomas' position. Rosecrans halted long enough to send back his chief of staff, Gen. J. A. Garfield, to ascertain the import of the heavy firing still heard from Thomas' command, and then continued his flight to Chattanooga to prepare for the holding of that town at all events. Meantime Thomas was receiving a terrific hammering, Polk assaulting his right and Longstreet his left. He was slowly forced back, and at one time, having a gap left in his line, Longstreet rushed in, and for a time disaster and defeat seemed to be the inevitable result for the Union army; but Granger hurried up his reserves and strengthened the weak place, thus averting the impending danger. Nightfall put an end to the second day's fight, and Thomas fell back slowly and in good order, capturing 500 prisoners as he retired. It is yet an unexplained circumstance why Bragg did not continue the fight during the night of the 20th, when Thomas was exhausted and had resisted to the last extreme of his tenacity, and had not one more effort in reserve. The night was one on which the full moon shone unobscured by a cloud, and the battle could have been continued to the irreparable damage of the Union army. This was not done, and the next morning found Thomas in a new position, from which he offered battle to Bragg, the offer being declined. On the evening of this day Thomas rejoined the army at Chattanooga.

The battle of Chickamauga was undoubtedly a tactical victory for the Confederates, but this victory had been dearly bought. Bragg stated his losses as two-fifths of his entire force. But of far greater importance to the Confederacy was the loss of Chattanooga, to which the Federal army had retired, and which they now proceeded to fortify. The Federal losses were in the neighborhood of 17,000 men, and arms in proportion, but Chattanooga was worth the price, and this seemingly disproportionate loss of life was undoubtedly compensated by the fact that the possession of this stronghold practically decided the war in the far South. On the 16th of the following month General Rosecrans was peremptorily (and, according to some authorities, unnecessarily and brutally)

relieved of the command of the army of the Cumberland, in which he was superseded by General Thomas, General Grant at the same time being made commander of the entire military Division of the Mississippi, which included the Departments of the Ohio, the Cumberland and the Tennessee.

Rosecrans had strongly fortified Chattanooga, which Bragg was now besieging from the east and the south. When Grant had taken charge of the Division of the Mississippi he had given the command of the army of the Tennessee to Sherman, and that of the Ohio to Burnside, who was soon superseded by J. G. Foster. Sherman was ordered to hurry his command to Chattanooga, which he at once set out to do. General Grant, learning that the Union army was in great straits, telegraphed to Thomas to hold Chattanooga at all hazards. The answer given by Thomas was like the man: "We will hold it till we starve." His answer was verified, almost, by events. The investment of Chattanooga by the army of Bragg was so complete that the only hope of supplies lay in transporting them over seventy miles along mountain roads which were continually patrolled by Confederate cavalry, and upon which several trains of supplies and ammunition had been destroyed by Wheeler's cavalry. In addition to this heavy rains had rendered the roads well nigh impassable. Grant arrived at Chattanooga on the 23d of October, and his arrival was the first gleam of hope for the Federals. About 10,000 cavalry and artillery horses had died of starvation, and the soldiers had been reduced to half rations. Grant's coming meant relief; for Sherman was on his way to Bridgeport to open communications that way; while Hooker was marching to the same point, with a reënforcement from the army of the Potomac consisting of 20,000 men, his purpose being to get possession of the road between Bridgeport and Brown's Ferry. Palmer was following Hooker with the fourteenth army corps, his assignment being to march along the north bank of the Tennessee river to a point opposite Whitesides. To deceive the Confederates and facilitate these movements, a stratagem was successfully resorted to: General Hazen was sent with 1,800 men down the river at night in sixty pontoon boats, and succeeded in rounding the loop from Brown's Ferry unobserved by the Confederates. This detachment at once seized the range of hills three miles below Lookout Mountain, covering the enemy's roads of communication. In the meantime 2,800 men had been marched along the north bank of the river to the same point, where they had laid a pontoon bridge, and crossed the stream. On the 28th Hooker came up with a portion of the twelfth and all of the eleventh corps, followed by Palmer with the fourteenth, and crossed to the south side of the river and marched up Lookout Valley as far as Wauhatchie. This put a new aspect on affairs, and soon a plentiful supply of provisions and ammunition was pouring into the beleaguered city over the roads thus secured. The Confederates at once attacked Hooker, Longstreet assaulting his right with great ferocity, but the Confederates were driven back, and Hooker advanced his lines to the crest west of Lookout Creek. Just at this point Bragg made the fatal mistake of detaching Longstreet and sending him to Knoxville to destroy Burnside, who was ordered by Grant to hold that town to the last extremity. On the 14th of November Sherman arrived, and took his position on the north bank of the Tennessee, near the mouth of the South Chickamauga—thus forming the Federal left, his duty being to attend to the Confederates on the northern end of Missionary Ridge. Thomas was to take care of the center, while Howard was to be held in reserve on the north bank of the

river, a cavalry force being dispatched to the right and rear of the Confederates to cut their railroad communications between Cleveland and Dalton.

It being suspected that Bragg was falling back, Grant ordered Thomas to make a reconnoissance in his front on the 23d. Wood's division led, followed by Palmer's and Howard's corps. These troops moved forward from Fort Wood till they had reached Orchard Knob, midway between their starting point and Missionary Ridge, and here halted and ran up some guns on the top of the Knob, entrenching themselves there. Sherman began his movements simultaneously. He sent one brigade at dark on pontoons drifting down North Chickamauga creek to a point just north of the South Chickamauga, where they landed a regiment which captured the Confederate pickets, while the remainder of the force dropped down to a point below the South Chickamauga, where they proceeded to lay two pontoons—one across the Tennessee, and another for cavalry across the South Chickamauga. By three o'clock of the following afternoon the entire command of Sherman was across the river and entrenched near the railroad tunnel. The cavalry, under Colonel Long, swooped around the Confederate right, destroying the railroad from Chattanooga to Cleveland, and inducing in Bragg's mind the idea that this demonstration on his right was the main attack. Hooker, on November 24th, climbed the western slope of Lookout Mountain, dislodging the Confederates, and then marched over to Missionary Ridge to the assistance of Thomas, who was anxiously awaiting him. Some artillery fighting had taken place at Orchard Knob, while Bragg was massing his troops in front of Sherman. The Confederates were inferior in numbers, but were strongly entrenched on the Ridge, Hardee holding the right and Breckinridge the left.

The situation of affairs at this juncture induced Bragg to weaken his center to reënforce the right, which he proposed to hurl upon Sherman. Grant remained inactive till about 3:30 P. M., when the signal guns announced that Hooker had arrived at the ridge by the way of the Rossville road. Immediately Wood's, Baird's and Johnston's commands rushed down upon the rifle pits at the foot of the ridge. Here they were to have stopped and waited for orders, but they continued their headlong charge, the Union artillery playing on the Confederates over their heads as they rushed up the slope. Hooker poured in his men from the right, and met but little resistance. The attack on Sherman soon ceased, and the fighting was all concentrated on Missionary Ridge. By sunset the Federal troops had gained the crest of the ridge, and the Confederates had been driven in wild rout down the eastern slope. Nightfall put an end to the contest, and the Confederates, unmolested by general pursuit, abandoned all their positions before Chattanooga, leaving 6,000 prisoners, 40 guns and 7,000 small arms. Bragg took position at Ringgold and Dalton, and the next day the Confederates under Cleburne beat off a reconnoitering party under Sherman at White Oak Ridge. This may be said to be the end of the Chattanooga campaign. The strength of the Federal army was about 80,000, while that of the Confederates was about 50,000. The losses of the Unionists in killed and wounded did not exceed 5,000, while the Confederates suffered much more severely—their losses in prisoners, especially, being disproportionately large.

CHATEL (Fr. *chatel*, Old Fr. *chaptel*, from Lat. *capitale*, corrupted into *captale* and *catallum*, meaning the capital or principal sum in a loan; hence goods in general, especially cattle, as distinguished from land) is a term used to designate any kind of property which.

with reference either to the nature of the subject or the character of the interest possessed in it, is not freehold. CHATTEL MORTGAGE is a mortgage on personal property or movable chattels. It is usually given for collateral security.

CHATTERER, a significant popular name, often applied to the birds of the family *Ampelidæ*, a family of the order *Insesores* and tribe *Dentirostres*, having a depressed bill like that of the Fly-catchers (*Muscicapidæ*), but somewhat shorter and broader in proportion and slightly arched. To this family belong the cotingas, wax-wings, piauhaus, caterpillar-hunters, etc.

CHATTERTON, THOMAS (1752-1770). Among the poets of the eighteenth century, Thomas Chatterton occupies a place altogether unique. He indeed claims scarcely less the interest of the psychologist as a marvelous example of matured intellectual precocity than that of the student of English literature as a poet remarkable in an age of varied literary excellence.

On the 3d of August, 1760, when in his eighth year, Chatterton was admitted to all the privileges of Colston's Hospital. This charity is popularly styled the Blue-coat School of Bristol, and as such has been referred to as an institution of a similar character to that of Christ's Hospital, London.

Chatterton remained an inmate of Colston's Hospital for upward of six years, learning little more than the most ordinary elements of a common school education.

On the 1st of July, 1767, before he had completed the seventh year of his residence in Colston's Hospital, Chatterton was transferred to the office of Mr. John Lambert, attorney, to whom he was bound apprentice as a clerk. There he was left much alone; and after fulfilling the routine duties devolving on him, he found leisure for his own favorite pursuits. An ancient stone bridge on the Avon, built in the reign of Henry II., and altered by many later additions into a singularly picturesque but inconvenient thoroughfare, had been displaced by a structure better adapted to modern requirements. In the month of September, 1768, when Chatterton was in the second year of his apprenticeship, the new bridge was partially opened for traffic. Shortly afterward the editor of *Felix Farley's Journal* received from a correspondent, signing himself *Dunelmus Bristolensis*, a "description of the mayor's first passing over the old bridge," professedly derived from an ancient MS. Mr. William Barrett, F.S.A., surgeon and antiquary, who was then accumulating materials for a history of Bristol, secured the original manuscript, which is now preserved in the British Museum, along with other Chatterton MSS., most of which were ultimately incorporated by the credulous antiquary into a learned quarto volume, entitled the *History and Antiquities of the City of Bristol*, published nearly twenty years after the poet's death.

The publication of the description of the ancient opening of the bridge naturally excited inquiry; for the picturesque narrative acquired a suitable flavor of antiquity, without being too much obscured for the general reader, by its archaic language and spelling; and so a desire was manifested to trace it to its source. Chatterton was ere long recognized as its contributor, on presenting himself at the office of the *Bristol Journal* with another of his productions; and then it was that the definite story made its appearance—over which critics and antiquaries wrangled for nearly a century—of numerous ancient poems and other MSS. taken by the elder Chatterton from a coffer in the muniment room of Redcliffe church, and transcribed, and so rescued from oblivion, by his son.

It was at this time that Chatterton, conceiving the idea of finding sympathy and aid, addressed a letter to Horace Walpole, inclosing some of his manuscripts.

and telling him that he was the son of a poor widow and clerk to an attorney, but had a taste for more refined study, and hinting a wish that Walpole might help him to some more congenial employment. But he replied coldly, advising the boy to stick to the attorney's office; and "when he should have made a fortune" he might betake himself to more favorite studies. Chatterton now abandoned the antique muse and turned his attention to periodical literature and the politics of the day. On April 17, 1770, he penned his "Last Will and Testament," a strange satirical compound of jest and earnest, in which he intimated his intention of putting an end to his life. This so frightened his friends that it secured him his release from the attorney, and with a purse made up by these friends, and a bundle of manuscripts under his arm, he set out for London. Here his busy pen dashed off songs, burlesques, sketches, and political articles in profusion, but the payment for the former was delayed, and State prosecutions of the press put an end to the latter. The high hopes of the sanguine boy began to fade. Two months after his arrival in London he removed to an attic on Brook street, Holborn, and already starvation and failure stared him in the face. A neighboring apothecary whose acquaintance he had made, discerned ere long the straits to which he was reduced, and repeatedly invited Chatterton to join him at dinner or supper, but his proffered hospitality was repelled. Like offers on the part of his landlady met with the same refusal. The latter afterward said that she knew he had gone without food for two or three days at a time. Chatterton now wrote for letters to assist him to an opening as a surgeon's assistant on a trading vessel, as the study of medicine had a great charm for him, and he had at an earlier period contemplated embracing this profession. But his letters remained unanswered, and he continued for several weeks to hope against hope for their replies. On August 24, 1770, he retired to his attic for the last time, carrying with him the poison which he there drank, after tearing into fragments what manuscripts he had on hand. Thus perished by his own hand, at the early age of seventeen years and nine months, a youth assuredly without his equal in the eighteenth century.

CHAUCER, GEOFFREY. There are few fields of research in which antiquarians, from Speight to Furnivall, have labored so zealously and successfully as the life of Chaucer. The secret of their success has been that Chaucer was more actively engaged in public affairs than any poet of celebrity since his time, and has consequently left many traces in official records. The precise date of his birth has not been ascertained. The accepted date till lately was 1328. The difficulty with this date was his being described as "forty years and upwards" in 1386, and of late opinion has inclined to 1340 as a more probable year. This is favored by the discovery that the poet was Richard Chaucer's grandson and not his son, and fits better than 1328.

How Chaucer was educated, whether like "Philo-genet," the name which he assumes in the *Court of Love*, he was "of Cambridge clerk," and he was introduced to the notice of the court, is left to conjecture. He bore arms in Edward III.'s invasion of France in 1359, John Chaucer being also in the expedition, probably in connection with the commissariat. There was little fighting in that expedition, the ravages of the English for several years before having left little to fight for; but in the course of a disastrous retreat, compelled rather by hunger than by martial force, Chaucer was taken prisoner. In 1360 the king paid £16 for his ransom. From 1360 to 1366 there is a gap in the record of his life; but in the latter year his name occurs in a list of the members of the royal household as one of thirty-

seven "esquires" of the king, who were to receive a gift of clothes at Christmas. By this time also he would seem to have been married, if the Philippa Chaucer, one of the demoiselles of Queen Philippa, who in 1366 was granted a yearly pension of ten marks, was, as is most probable, his wife. In 1367 Chaucer himself received a pension of twenty marks from the king, being described as "dilectus valettus noster." To show that in being courtier and scholar he had not ceased to be soldier, he took part in another inglorious expedition against France in 1369, in which, from the Fabian tactics pursued by the French king, there was little opportunity for distinction. He was back in London toward the end of 1370, and henceforward devoted himself to more peaceful pursuits. His talents for diplomacy and his acquaintance with commerce were recognized by the Crown. In 1372 he was despatched to Genoa as a commissioner to arrange a commercial treaty with the Genoese. About this embassy much has been written, on the supposition that he may have made the acquaintance of Petrarch in the course of his visit to Italy.

Whether in recognition of his services or on other grounds, he received on his return, in 1374, the grant of a pitcher of wine daily; and soon after, in further evidence of the royal favor, he was appointed comptroller of the customs and subsidy of wools, skins, and tanned hides in the port of London. In 1376 he was associated with Sir John Burley on some secret service, the nature and place of which are not known, and in 1377 he was sent on the secret mission to Flanders. And it was not merely in commercial matters that the poet was considered serviceable; in 1378, after the accession of Richard II., he was attached to a mission sent into France to negotiate a marriage for the young king. His fortunes continued steadily to improve; with his pension of twenty marks from the king, £10 from the duke of Lancaster, his allowance of robes as one of the king's esquires, his salary as comptroller, his payments for occasional services, his pitcher of wine (commuted in 1378 into an annuity of twenty marks), and his wife's pension, he had no reason to complain that his genius was neglected. The wonder was that his genius was not smothered. His employment as comptroller was not a sinecure; he was bound to write the rolls of his office with his own hand, and he had to be continually present at his office, not having the option of appointing a deputy. Apparently as he rose in the world he was allowed to make an easier arrangement; in 1382 he was appointed comptroller of the petty customs of the port of London, with the privilege of appointing a deputy; and in 1385 he was allowed to appoint a deputy for the other comptrollership. In 1386 he touched the summit of his fortune, being returned to Parliament as a knight of the shire of Kent. But that was an unfortunate year for him; his patron, John of Gaunt, lost his ascendancy at court, and a commission which sat to inquire into the abuses of the preceding administration superseded Chaucer in his two comptrollerships. In the course of two years he was obliged to transfer his annuities to another man, probably selling them for a sum of ready money. The return of Lancaster to power in 1389 again brightened his prospects; he was appointed clerk of the king's works, and four years afterward obtained a grant of an annuity of £20. How much he wanted this assistance appears from the fact that he was several times obliged to apply for small portions of it in advance. When Bolingbroke came to the throne in 1399 he gave the old poet an additional annuity of forty marks, which came in time to comfort the last year of his life. The minutes of his pension cease in 1400, and, according to the inscription on his tomb, he died on the 25th of October of that year.

CHAUNY, a town of France, in the department of Aisne, 20 miles W.N.W. of Laon, situated partly on the right bank of the Oise and partly on an island at the commencement of the canal of St. Quentin.

CHAUTAUQUA, a village on the lake of the same name in Western New York, built for a summer resort, under the auspices of an assembly of evangelical ministers and laymen. It has several hundred cottages, fine hotels, and public buildings, and in the season is the assembling place of thousands of visitors.

CHAUVIN, ETIENNE (1640-1725), a celebrated minister of the Reformed religion was born at Nîmes. At the revocation of the Edict of Nantes he retired to Rotterdam; and in 1695 the elector of Brandenburg appointed him professor of philosophy at Berlin, where he enjoyed considerable reputation as a representative of Cartesianism, and as a student of physics.

CHAUX DE FONDS, a town of Switzerland, in the canton of Neuchâtel, and ten miles northwest of the city of that name, at a height of 3,200 feet above the level of the sea, in the rugged and narrow valley of the Jura. The principal trade is the manufacture of watches, which are turned out at the rate of 150,000 annually; but gilding, enamelling, and carving are also carried on, as well as the manufacture of scientific and musical instruments. The watch trade was introduced in 1679, and is conducted on the principle of the division of labor. Population, 25,000.

CHAVES, a town of Portugal, not far from the frontier, in the province of Tras-os-Montes, on a plain near the right bank of the Tamega, which is here crossed by a fine old Roman bridge of eighteen arches.

CHAZELLES, JEAN MATHIEU DE (1657-1710), a French mathematician and engineer, was born at Lyons in 1657. He was employed for some time by Cassini in measuring the meridian, and afterwards taught mathematics to the duke of Mortemar, who procured him the preferment of hydrographic professor for the galleys of Marseilles. In 1686 Chazelles went on board the galleys in their campaigns and kept his school at sea. He was sent to the west coast in July, 1689, to examine the practicability of so contriving galleys that they might live upon the ocean, and he employed them to tug the men-of-war when becalmed; and having set sail with fifteen galleys from Rochefort, he cruised as far as Torbay, in Devonshire, and took part in the descent upon Teignmouth.

In 1693, Monsieur de Pontchartrain, secretary of state for the marine, engaged Chazelles to publish a second volume of the *Neptune Français*, which was to include the hydrography of the Mediterranean. When in Egypt he measured the pyramids, and finding that the angles formed by the sides of the largest were in the direction of the four cardinal points, he concluded that this position must have been intended, and also that the poles of the earth and meridians had not deviated since the erection of those colossal structures. He was made a member of the Academy in 1695, and died in 1710.

CHEATING. In the technical language of the law, cheating means the offense of fraudulently obtaining the property of another by any deceitful or illegal practice short of felony, but in such a way as that the public interest may possibly be affected.

CHEBOYGAN, the capital of the county of the same name in Michigan, is an important shipping point for lumber. It is situated on Lake Huron, at the mouth of the Cheboygan river, and contains a bank, three churches, a graded school, six saw-mills, planing mills, foundries, and two newspaper offices. Population (1890 census), 6,244.

CHEDUBA, an island in the Bay of Bengal, situated ten miles from the coast of Aracan, extends about 20

miles in length from north to south, and 17 miles from east to west, and its area of 250 square miles supports a population of 10,000. The channel between the island and the mainland is navigable for boats, but not for large vessels. The surface of the interior is richly diversified by hill and dale, and in the southern portion some of the heights exceed a thousand feet in elevation.

There are various indications of former volcanic activity, and along the coast are earthy cones covered with green-sward, from which issue springs of muddy water emitting bubbles of gas. Copper, iron, and silver ore have been discovered; but the island is chiefly noted for its petroleum wells, the oil derived from which is of excellent quality, and is extensively used in the composition of paint, as it preserves wood from the ravages of insects. Timber is not abundant, but the gamboge tree and the wood-oil tree are found of a good size.

CHE-FOO, or **YEN-TAI**, as it is called by the natives, a seaport town of Northern China, on the southern coast of the Gulf of Pih-Chih-li, in the province of Shan-tung near the mouth of the Yi-ho, and about 30 miles east of the city of Tang-chow-foo.

CHEESE, a solidified preparation from milk, the essential constituent of which is the protentious or nitrogenous substance *casein*. All cheese contains in addition some proportion of fatty matter or butter, and in the more valuable varieties the butter present is often greater in amount than the casein. Cheese being thus a compound substance of no definite chemical composition is found in commerce of many different varieties and qualities; and such qualities are generally recognized by the names of the localities in which they are manufactured. The principal distinctions arise from differences in the composition and condition of the milk, operated upon from variations in the method of preparation and curing, and from the use of the milk of other animals beside the cow, as for example, the goat and the ewe, from the milk of both of which cheese is manufactured on a commercial scale.

The quality and the composition of the milk operated on are of prime importance in cheese-making. Not only does this substance vary widely in richness and flavor owing to the breed, the nature of the food, and the state of the health of the animal yielding it, and many other circumstances; but in cheese-making the differences are still further increased, in some cases by adding cream to it, and in others by using it as skim-milk or milk deprived of a portion of its fat.

The object of the cheese-maker is to obtain in a solid form as large a proportion as possible of the casein and butter contained in the milk dealt with. The poverty in these constituents of the whey or liquid matter separated in the process of making cheese is therefore, to some extent, a measure of the success of the operation.

In the practice of cheese-making it is found necessary, in order to hasten the coagulating action of rennet, and to produce a curd of sufficient hardness, to heat the milk to a temperature which varies from 72° to 85° or 90° Fahr. The lower temperature, it is found, yields a soft cheese, retaining much whey and ripening soon; while the increased heat produces a firm curd and a solid slow-ripening cheese. After due coagulation the curd is broken, and by a variety of manipulative processes as much as possible of the whey is drained away, and the curd is reduced to comparatively dry crumbly fragments. At this stage, sometimes, but not frequently, the curd is salted; it is then collected into a clean cheese-cloth, placed in a cheese vat of the form and size of the cheese to be made, and submitted to pressure in the cheese press. While in the press it is frequently turned, a good deal of whey meantime continuing to exude; and it is

found that the amount of pressure has much influence on the solidity and rate of ripening of the cheese. As soon as a sufficient skin has formed on the cheese to preserve its shape, it is removed from the press and salted by repeated rubbings of salt over its surface. The cheese is then put aside in a clean, cool, airy situation for ripening, a process which takes a variable period according to the quality of the cheese, its method of preparation, and other circumstances.

As an article of food cheese is used in a double capacity. Rich cheese in an advanced stage of ripeness is eaten in small quantities partly on account of its piquancy, and partly also as a digestive stimulant. Skim-milk cheese, and all the varieties poor in fat, again, are valuable articles of food on account of their high percentage of nitrogenous matter, and the cheaper qualities are, on this account, extensively consumed among the classes by whom other animal food is not usually obtainable. As an article of ordinary diet, cheese labors under the disadvantage of being hard of digestion; and especially when it is toasted, as is frequently the practice, it really is, as has been observed, "about as digestible as leather."

Cheese-making in the United States has undergone great changes from the old methods. Before the factory system was introduced our cheese was pungent in flavor and quickly decomposed, and consequently found but a limited sale; but at the present time it competes favorably with the foreign products even in England. The factory system has been reduced, by the aid of improved machinery, to a most economical basis. This method originated by the death of the owner of a large dairy, which was divided among three sons. The three united and manufactured in the old dairy, and in time were joined by some of their neighbors, and in 1851, under the supervision of the eldest of the brothers, the first factory was inaugurated. Other factories were started, and several of the smaller ones would unite in forming a larger one, until some of the largest manufactured the milk of from 1,000 to 1,200 cows. The average factory utilizes the milk of from 400 to 500 cows. Under this system the milk is brought to the factory twice a day, weighed, and then run into a large vat. The factory is run on the co-operative plan, and the dairy farmers receive their share of the dividends periodically, according to the quantity of milk they have delivered. This plan has resulted in a uniform quality and high standard of product. Nearly one-fourth of the cheese manufactured in the United States is thus made in private dairies. This system prevails largely in the States of New York, Pennsylvania, Ohio, Illinois, Iowa, and Wisconsin.

CHEETAH, or HUNTING LEOPARD, a Carnivorous Mammal belonging to the family *Felidae*, but exhibiting in form and habits such a mixture of feline and canine characteristics as have led naturalists to regard it as a transition form between the cat and dog groups. Unlike the typical *Felidae*, its head is short and round, its legs elongate and slender, and the flesh tooth of the upper jaw thin and longitudinally compressed. The cheetah is found throughout Africa and Southern Asia, and has been employed for centuries in India and Persia in hunting antelopes and other ruminant game. In prosecuting this sport at the present day the cheetah is conveyed to the field in a low car without sides, hooded and chained like hunting-birds in Europe in the days of falconry. When a herd of deer or antelopes is seen, the car, which bears a close resemblance to the ordinary vehicles used by the peasants, is usually brought within 200 yards of the game before the latter takes alarm; the cheetah is then let loose and the hood removed from its eyes. No sooner does it see the herd, than drop-

ping from the car on the side remote from its prey, it approaches stealthily, making use of whatever means of concealment the nature of the ground permits, until observed, when, making a few gigantic bounds, it generally arrives in the midst of the herd and brings down its victim with a stroke of its paw. The sportsman then approaches, draws off a bowl of the ruminant's blood, and puts it before the cheetah, which is again hooded and led back to the car. Should it not succeed in reaching the herd in the first few bounds, it makes no further effort to pursue, but retires, seemingly dispirited, to the car. In Africa the cheetah is only valued for its skin, which is worn by chiefs and other people of rank. It forms an article of export from Senegal.

CHEKE, SIR JOHN, was born of good family at Cambridge, and was educated at St. John's College. His learning gained him the position of king's scholar, and in 1540 he was chosen to fill the chair of Greek then instituted by Henry VIII. Together with Sir Thomas Smith he has the honor of being one of the first who received knowledge of that language in England. About 1544 he was appointed tutor to Prince Edward, and on the accession of his pupil to the throne he received several considerable grants, and, among other honors, rose to the position of secretary of state. Unfortunately for himself he followed the duke of Northumberland, and acted as secretary to Lady Jane Grey during her nine days' nominal reign. In consequence Mary threw him into the Tower, and confiscated his wealth. In September, 1554, he obtained his liberty with leave to travel abroad. He visited Italy, gave lectures on Greek at Padua, and afterward was forced to support himself by teaching that language at Strasburg. In 1556 he was lured to Brussels by a message that his wife was in that town, and, on his way thither, was seized by order of Philip of Spain, and again brought to the Tower. He was immediately visited by two Catholic priests, who failed to convert him till he was informed that he must recant or be burned. Upon this he yielded, and made two public recantations. His principal work was *The Hurt of Sedition* (1549). He did not long survive his disgrace, and in September, 1557, he died in London.

CHELMSFORD, the county-town of Essex, in England, 29 miles N.N.E. of London, with which it is connected by the Great Eastern Railway. It lies but a short distance from the site of the Roman colony of Cæsaromagus, usually identified with Writtle. At the time of the Conquest the manor was held by the bishops of London; and in the reign of Henry I. the town was indebted for its bridge over the Cann to Bishop Maurice. After this improvement it rapidly increased in prosperity, and in the reign of Edward III. it sent four representatives to the council at Westminster. Of the Dominican convent founded in the town at an early period there are no remains; but a chronicle composed by Friar Langford is still extant. Population, 10,000.

CHELSEA, formerly a village about two miles west of London, on the left bank of the Thames, but now an integral part of the great metropolis. For further details see the article LONDON.

CHELSEA, a city of the United States, in Suffolk county, Massachusetts, forming part of the suburbs of Boston. It is situated on the north bank of the Mystic river, which separates it from Charlestown, while Chelsea creek lies between it and East Boston. It communicates both with Charleston and with East Boston by bridges. Its public buildings comprise the city hall, Winnisimmet hall, the naval hospital, the marine hospital, an academy of music, a free public library opened in 1870, a high school, a national bank, and about a dozen churches; and among its industrial

establishments are several foundries, brick-works, worsted factories, soapworks, and oilworks, a manufactory of washing machines, a brewery, and a salt-refinery. It is supplied with water from the works in Charlestown. Population in 1890, 27,909.

CHELTENHAM, a parliamentary and municipal borough of England, in Gloucestershire, situated about eighty-eight miles northwest from London, in a valley watered by the Chelt, and sheltered on the east and northeast by the Cotswold Hills. Cheltenham is one of the most famous and best patronized of English watering places, and is also a noted educational center. Noticeable buildings are the fourteenth century parish church, the Roman Catholic Church (1857), with a spire 205 feet high; the Corn Exchange (1863), and the handsome Free Library. Population (1890), 50,000.

CHELYUSKIN, CAPE (formerly *Northeast Cape*, and sometimes called *Cape Severo*), the most northerly point of Asia, on a peninsula of the same name, which forms the western arm of the eastern half of the Taimyr peninsula. It is named after a Russian officer who led an expedition thus far in 1742, and here succumbed, with his wife, to the fatigues of the journey; it was not revisited till 1878, when Nordenskjöld, in the *Vega*, spent August 19 and 20 here. He found it a low promontory, divided into two parts by a small bay; the latitude of the western is $77^{\circ} 36' 37''$ N., that of the eastern $77^{\circ} 41'$ N.

CHEMICAL NOMENCLATURE and NOTATION. In early times chemical substances were named according to the fanciful theories of alchemy. In 1787, Lavoisier founded the system of nomenclature which is followed still by chemists. At first it was intended that the names of simple as well as compound substances should be regulated by system. Hence such terms as oxygen (from *oxus*, acid, and *gennao*, to produce), *the acid-producer*, given from the notion then held that no acid was without oxygen. But with the advance of chemistry, a more rational nomenclature has prevailed, and the systematized nomenclature is restricted to compound substances. As a general rule, the chemical name of an elementary substance does not convey any scientific meaning, and must be regarded as a simple mark or designation. The ancient and more common metals retain their popular titles, such as gold, silver, and copper; but the more recently discovered metals have names given which end in *um*. The symbol of an element is obtained from the first letter of its Latin name, as O for oxygen; Pl for lead (Lat. *plumbum*). When the names of two or more elements commence with the same letter a second letter is attached. Such as S for sulphur, Se for selenium, and Si for silicon. The name of a compound substance generally indicates the elements of which it is composed, as Oxide of Iron composed of oxygen and iron. When two elements combine with each other in more than one proportion or equivalent the names of the compound bodies are contrived so as to express this, as monoxide, dioxide, etc. If a symbol be employed alone, it represents one equivalent of the element. Thus, O signifies one equivalent, or sixteen parts by weight, of oxygen; C, one equivalent, or twelve parts by weight, of carbon; H, one equivalent, or one part by weight, of hydrogen. The combination of two elements is represented by placing the symbols for those elements side by side; thus H_2O signifies two equivalents of hydrogen and one equivalent of oxygen in a state of chemical combination (viz., water). In the construction of the formulas of complex substances, the period (.) and *plus* sign (+) are often introduced; the former to separate the symbols of substances which are united in molecules and the latter to express addition. Large figures placed at the left hand of a formula

multiply all the symbols till a period or plus sign appears. Thus, $3H_2SO_4$ represents three equivalents of sulphuric acid. When a compound substance requires to be multiplied, it is inclosed within parentheses, and a small figure placed immediately after it; thus, $FeK(SO_4)_2 \cdot 12H_2O$, representing potassio-ferric sulphate of aluminium, or potassium-iron alum, which contains one equivalent each of iron (Fe) and potassium (K), two equivalents of sulphuric tetroxide (SO_4) forming the sulphate of iron and potassium, and twelve parts of water (H_2O).

CHEMISTRY. That the claims of alchemy, notwithstanding repeated demonstrations of their futility, so long received the attention of mankind is attributable to various causes. Not only did imposters find free scope in the credulity of an age of ignorance for the exercise of their arts; but men of talent and culture, relying on tradition, were led honestly to support the doctrine of the transmutation of metals. The existence of the philosopher's stone having once been accepted as an ascertained fact, it is not extraordinary that Isaacus Hollandus is able to indicate the method of its preparation from "adamic" or "virgin" earth, and its action when medicinally employed; that Roger Bacon, Raymond Lully, Basil Valentine, and John Price, knew the exact quantities of it to be used in transmutation; and that George Rippel, in the 15th century, had grounds for regarding its action as similar to that of a ferment. In the view of some alchemists, the ultimate principles of matter were Aristotle's four elements, the proximate constituents were sulphur and mercury, the father and mother of the metals; gold was supposed to have attained to the perfection of its nature by passing in succession through the forms of lead, brass, and silver; gold and silver were held to contain very pure red sulphur and white quicksilver, whereas in the other metals these materials were coarser and of a different color. Geber, judging from an analogy instituted between the healthy human being and gold, the most perfect of the metals, regarded silver, mercury, copper, iron, lead, and tin in the light of lepers that required to be healed.

To the evidence of their imaginations the alchemists were able to add that of actual observation; the fact that many ores resembling metals were changed and decomposed by heat could not but offer support to theories formed at a time when the nature of chemical combination was not understood; and the apparent transition of many bodies into one another, as, for example, that of clouds into water, was not less wonderful to them than the transmutation of the lighter metals into gold.

It was in the 16th century that a new race of alchemists, or spagyrist, as they were termed, arose, who, abandoning the search for the philosopher's stone, began to direct their energies to the discovery of chemical remedies for the various diseases of the body. "The true use of chemistry," says Paracelsus (1493-1541), "is not to make gold, but to prepare medicines."

Among the contemporaries but not the followers of Paracelsus the German metallurgist Agricola deserves mention; his great work, *De Re Metallica*, is the most valuable contribution to practical chemistry that appeared in the 16th century. Libavius also, who died in 1616, did much to forward chemical science at this period.

To Francis de la Boë Sylvius (1614-1672), who studied with care the works of Van Helmont and Descartes, is due the foundation of the iatro-chemical sect among physicians. In his view the health of the human frame depends upon the relation of its fluids, which were acid and alkaline (*acidum* and *lixivum*), and these by union produced a neutral and milder substance; two kinds of

diseases were distinguished, the result either of alkaline or of acid acidity.

In the works of Glauber (1604–1668), alchemy, the preparation of chemical medicines, and the processes employed by him for that end are treated of. His *Miraculum Mundi* has for its subject the virtues of the *sal mirabile*, sulphate of sodium, or Glauber's salt, of which he was the discoverer; and in other of his works he describes various chlorides of the metals, the sulphates of iron and copper, and sulphuric, nitric, and hydrochloric acids, but with respect to their ultimate constitution he advances no theory; he variously states in his different works that mercury and salt are the principles of all metals, that salt is the origin of all things, and again that water and earth have produced all the minerals and metals.

The first to attempt to overthrow the doctrines of the iatro-chemists was Robert Boyle (1627–1691), who in 1661 published a treatise in which he shows the doubtful character of the doctrine of the threefold constitution of matter, and lays stress upon the influence of heat in the formation of new bodies, not necessarily pre-existent as such in the substances from which they are produced.

Boyle inclines to a belief in "but one universal matter of things, as it is known that the Aristotleans themselves acknowledge, who called it *materia prima*; the portions of this matter seem to differ from one another in certain qualities or accidents, fewer or more." He thinks that elementary corpuscles are of various sizes, and of more sorts than three or four or five; and that the combination of two of these corpuscles may give rise to a new body as really one as either of the corpuscles before they were mingled or confounded, this concretion being endowed with distinct qualities, and no more by fire or any known way of analysis divisible into the corpuscles that had first concurred to make it, than either of them could by the same means be subdivided into other particles.

Of the labors of Kunckel (1630–1703) in the cause of chemistry it is impossible to give an account within the compass of the present sketch; but whilst the science was enriched by means of his numerous researches, amongst which may be mentioned those on phosphorus, it received no assistance from his theoretical views concerning the constitution of bodies.

To Becher (1635–1682) and to Stahl (1660–1734) chemistry owes the introduction of the first consistent theory of the constitution of compounds and of chemical action. Becher held that the primary ingredients of matter were water and earth, and that from these were produced three earths—the fusible or stony, the fatty, and the fluid earths,—improperly called salt, sulphur, and mercury. Stahl, who developed the doctrines of Becher, enumerated four elements—water, acid, earth, and phlogiston.

F. Hoffman, who contributed greatly to the progress of analytical chemistry in Germany, held with Stahl that sulphur consisted of acid and phlogiston, and that combustible bodies contained something which might be described as phlogiston, but thought it possible that the calces of metals were formed, not by the subtraction of phlogiston, but by the combination of the metals with an acid material. Boerhaave, without directly attacking the phlogistic theory, casts doubts upon the assumption of the existence of a combustible principle and of earthy substances in the metals.

The phlogistic theory of Stahl, though incorrect, was of no small assistance towards a true understanding of chemical phenomena. It was based upon experimental data, the interpretation of which served for the correlation of facts of which but vague and enigmatic ex-

planations had formerly been given. The supposed subtraction of phlogiston in the calcination of metals, though equivalent in reality to the addition of oxygen, was yet a loss of potential energy, by virtue of the combination of the metal with the gas; and the gain of phlogiston was an increase of potential energy, attendant on the removal of oxygen.

It was only in the latter part of the 18th century that the influence of the presence of air upon the formation of many chemical compounds was generally perceived, and that through the use of the balance the nature of gases began to be comprehended and such airy nothingness became commonly regarded as an intimate and necessary constituent of various solid and fluid bodies. The phlogistic theory gave to its adherents so plausible and moreover so circumstantial an account of the modes of chemical action, that facts and observations which caused at a later time a complete revolution in the theory of chemistry, such, for instance, as regarded the existence and properties of oxygen, remained without explanation, and almost unheeded. Robert Hooke, so early as 1665, in his *Micrographia*, foreshadowed the discoveries of Priestley and his contemporaries, when he advanced the opinion that in common air there existed a substance like, if not the same as, that fixed in saltpetre, and which at an elevated temperature dissolved combustibles such as sulphurous bodies with a rapidity sufficient to occasion the motion of fire, and to create light; this solvent he considered to be far less for a given bulk of air than of saltpetre. The investigations of Mayow (1645–1679) are particularly interesting. In treatises published at Oxford in 1668 and 1674 oxygen is actually described by him under the name of *fire-air*, *aërial spirit*, and *nitre-air*; all acids are said to contain it, and it is necessary for combustion and respiration, processes which are therefore analogous; it is the nitre-air of the atmosphere that causes fermentation and the souring of wines, that produces sulphuric acid from sulphur, and effects the calcination of metals.

Early in the 18th century Newton in his *Opticks* indicated the nature and the modes of formation of gases. "Dense bodies," he tells us, "by fermentation rarefy into several sorts of air; and this air by fermentation, and sometimes without it, returns into dense bodies;" and further on he remarks that the particles shaken off from bodies by heat or fermentation, so soon as they are beyond the reach of the attraction of the body, recede from it, and also from one another with great strength, so as sometimes to take up above a million of times more space than they did before in the form of a dense body. This vast contraction and expansion seem to him unintelligible by feigning the particles of air to be springy and ramous, or rolled up like hoops, or by any other means than a repulsive power; the particles of fluids which do not cohere strongly are most easily rarefied into vapor; but those which are grosser, or cohere by a stronger attraction, are not separated without a stronger heat, or perhaps not without fermentation; being rarefied by fermentation they become true permanent air, those particles receding from one another with the greatest force, and being with most difficulty brought together, which upon contact adhere most firmly.

The first important step towards a knowledge of the specific properties of the various gaseous bodies was that made in the middle of the 18th century by Dr. Black, who experimentally proved that the causticity acquired on ignition by mild magnesia and lime was attributable not to the entrance into them of ponderable caloric, but to the expulsion of a peculiar kind of air, which occurred fixed, or in a state of combination, in the unburnt or mild earths, and caused them to be heavier before than after exposure to heat. He found

It possible, in fact, to impart to these substances a large amount of heat, which became latent, whilst at the same time their weight was lessened by the loss of "fixed air" (carbon dioxide). It was discovered by Black that alkalies in contact with quicklime became caustic by giving up their fixed air to the lime, which was thereby increased in weight and rendered mild. It was thus, by employing the balance as an experimental test of the composition of bodies, that Black laid the foundation of quantitative chemistry, and in so doing gave the first occasion to the strife that twenty years later began to rage between the followers of Stahl and the antiphlogisticians.

Foremost in the number of those who after Black distinguished themselves as pneumatic chemists, was Dr. J. Priestley (1733–1804). His first discovery, made in 1772, was nitric oxide gas, which he soon employed in the analysis of air. Boyle, more than a century before Priestley began his experiments, had stated in *The Sceptical Chemist*, that "without the addition of any extraneous body, quicksilver may by fire alone, and that in glass vessels, be deprived of its silver-like color, and be turned into a red body; from this red body, without addition, likewise may be obtained a mercury bright and specular as it was before." On the 1st of August, 1774, Priestley discovered that the red oxide of mercury evolved a gas when heated. This gas (oxygen) being superior even to the air as a supporter of combustion was regarded by him as *dephlogisticated air*; the incomcombustible part of the atmosphere he supposed to be saturated with phlogiston, on the assumption that a gas was so much the better adapted for supporting combustion as it contained within itself a smaller quantity of that body. Common air, by drawing phlogiston from burning substances, became, as he thought, phlogisticated air, and on that account had no longer any attraction for phlogiston, or in other words, any power of supporting combustion. The phlogiston evolved in the burning of combustibles and in the calcination of metals was supposed to unite with the atmosphere or the dephlogisticated air contained therein, and that which was produced by the action on the atmosphere of the phlogiston lost by the metals was the cause of the increased weight of their calces. The opinion that the air given off during the solution of metals in acid was their combustible constituent had been advanced in 1700 by Lémery; and Priestley, guided apparently by the notion suggested by Cavendish's experiments, that, to unite with acids, metals must part with their phlogiston, considered inflammable air (hydrogen) either as identical with or at least very rich in that principle. In 1788, in order to explain the formation of water from a mixture of inflammable and dephlogisticated air, he put forward the hypothesis that water entered into the composition of these and of fixed and other airs; inflammable air, he thought, might be the principle of alkalinity, dephlogisticated air, as Lavoisier had shown, being the principle of acidity. To the last Priestley was an advocate of the phlogistic philosophy, and though unquestionably one of the fathers of modern chemistry, was always, to quote the words of Cuvier, "a father who never wished to recognize his daughter." Besides nitric oxide and nitrogen, Priestley first made known sulphurous acid gas, gaseous ammonia and hydrochloric acid, and carbon monoxide; and he it was who, by showing that the condition of ammoniacal gas and of common air is altered by the transmission of electric sparks, led to Berthollet's analysis of ammonia, and Cavendish's discovery of the composition of nitric acid.

Henry Cavendish (1731–1810), who, like Priestley, was of the phlogistic school, contributed by his discoveries and carefully conducted investigations, especi-

ally as regards gases, scarcely less than that experimenter to the advance in chemical knowledge which before the beginning of the 19th century effected the subversion of the Stahlian philosophy. To him chemists are indebted for the invention of the pneumatic trough, and to him is due the first recognition of the importance of determining the specific gravities of the various gases.

Among the most eminent of the contemporaries of Priestley and Cavendish that cherished a belief in the existence of phlogiston was the Swedish chemist Scheele (1742–1786). It is upon his work as a practical chemist that his fame must rest. Tartaric acid was isolated by him in 1769, and he made the discovery in 1774 of baryta and of dephlogisticated muriatic acid (chlorine) and in 1779 of glycerine, the properties of which he pointed out in 1784; in 1781 he demonstrated the nature of hydrofluoric acid, first obtained by him in 1771, and prepared tungstic acid, before unknown; and between the years 1776 and 1786 he discovered benzoic, molybdic, lactic, mucic, oxalic, malic, and gallic acids, and made important observations on the compound of arsenious acid.

The advance made during the last part of the 18th century in analytical chemistry is attributable in great measure to the labors of Torbern Bergman of Upsala (1735–1784), who devised systematic methods of examining compounds by the wet way, and by means of the blow-pipe, and first rendered it possible to analyze minerals insoluble in acid by fusing them with an alkali or alkaline carbonate. In 1718 E. F. Geoffroy had published tables in which he exhibited the reciprocal chemical affinities of various substances, and these tables had been improved upon by Gellert in his *Metallurgic Chemistry*, 1751, and by Limbourg, 1761. Bergman, in 1775, gave in a dissertation on *elective attractions*, as he named affinity, an arrangement in 59 columns of all the chemical substances known at the time, in which was shown the order of their decomposition when in solution, and when exposed to a strong heat. The nature of the compounds formed by the mixture of reagents depended, in Bergman's estimation, on the sum of their attractions. From Wenzel's observations the idea of equivalency took its rise. He showed that the products of the mutual decomposition of two neutral salts were themselves neutral, or, in other words, that the same weight of base satisfies definite quantities of two different acids. Thus, according to his experiments, 123 parts of lime and 222 of potash, must be considered equivalent to each other, being both competent to neutralize 181.5 parts of sulphuric, or 240 parts of nitric acid.

In England, ten years previous to the publication of Wenzel's treatise, Cavendish describes certain quantities of fixed alkali and marble as "equivalent;" and in 1788 he stated that a quantity of oil of vitriol sufficient to produce 100 parts of plumbum ponderosum with sugar of lead would dissolve 33 of marble, since he found by experiment that so much oil of vitriol would saturate as much fixed alkali as a quantity of nitrous acid, sufficient to dissolve 33 of marble.—(*Phil. Trans.*, 1767, p. 102; 1788, p. 178.)

In 1792, J. B. Richter (1762–1807) published a work on *Stöchiometrie*, or the Art of Measuring Chemical Elements, in which he gave in two series of tables the weights of different bodies which neutralized 1000 parts of various acids, and the weights of acids that similarly corresponded to 1000 parts in the case of the bases, and pointed out the proportionality that existed between the weights of the bases, as also of the acids, in each series. There was, he remarked, a constant ratio between the quantity of an acid and the quantity of oxy-

gen in the weights of the bases needed for its complete saturation,—a fact afterwards restated by Berzelius, who showed that a simple and uniform relation was observable between the amounts of oxygen in the acid and basic portions of salts of the same class.

Although neither the science of chemistry nor yet a change in its objects can be said to have originated with Lavoisier (1743–1794), the means he introduced of attaining those objects, the ideas he put forth concerning the constitution of bodies, and the explanations he gave of various phenomena were new, and gave to the science in the twenty years preceding his death a completely altered aspect. The mine of chemistry had yielded rich returns long before Lavoisier came to labor in it; he availed himself of the old workings and, extending them, opened the main lode. “He discovered,” says Liebig, “no new body, no new property, no natural phenomenon previously unknown; but all the facts established by him were the necessary consequences of the labors of those who preceded him. His merit, his immortal glory consisted in this—that he infused into the body of the science a new spirit; but all the members of that body were already in existence, and rightly joined together.” In the first of his papers, in 1765, Lavoisier indicates no doubt of the existence of phlogiston. In 1775 he still spoke of it, but in the following year he expressed his conviction that, for the elucidation of certain phenomena, one must ascribe to phlogiston other qualities than those assigned to it by Stahl. It was in 1775 that he presented to the French Academy a memoir *On the Nature of the Principle which combines with the Metals during their Calcination, and which augments their Weight*, in which he describes the formation of fixed air from charcoal in the reduction of calces, and the preparation and properties of oxygen; but he makes no allusion to the fact that Priestley had in November of the foregoing year made him acquainted with that gas, or to the observations of Bayen in the *Journal de Physique*, February and April, 1774, to the effect that the change of a metal into a calx is attributable to the fixation of an aerial fluid, and that the red oxide of mercury is reduced by heat without the addition of anything, and loses in weight by reduction.

In 1776 Lavoisier, by experiments with phosphorus and sulphur, confirmed results already arrived at by him—that the atmosphere contained two gases, azote or nitrogen, and a highly respirable air, the absorption of which by burning substances accounts for their increase in weight. In 1777 he combated the assertion of Priestley that air is rendered irrespirable by becoming loaded with phlogiston, and showed that air in which candles were burnt furnished about two-fifths of its volume of fixed air, and that pure or dephlogisticated air under the same conditions became almost completely transformed into that gas. In a paper received by the Academy in 1778 Lavoisier broached his theory that the dephlogisticated air of Priestley was the universal acidifying or *oxygenizing* principle, which by combination with charcoal, sulphur, nitrogen, and phosphorus formed carbonic, vitriolic, nitric, and phosphoric acids, and with metals, calces; all the phenomena of combustion, Lavoisier contended, were explicable without the supposition of the existence of phlogiston, of which there was no evidence. In 1783, when he had determined to discover by carefully conducted experiments the nature of the product of the combustion of hydrogen, Lavoisier learned that Cavendish had ascertained that body to be water. He therefore repeated Cavendish’s experiments, and with the aid of Meusnier proved that water contains hydrogen, by passing steam through a red-hot porcelain tube containing iron wire. Lavoisier had long been unable to hold the doctrine that hydrogen was the

phlogiston of metals, seeing that the calces were actually heavier than the metals supposed to contain them, and that the hydrogen supposed to be evolved by the metals, though light, certainly had weight. Lavoisier now explained the production of hydrogen during the solution of metals in acids on the assumption that water was decomposed, its oxygen uniting with the metals, whilst its hydrogen escaped. In the case, however, of nitric acid, oxygen was supposed to be supplied by the acid. The effect of Lavoisier’s reasonings upon his contemporaries is illustrated by Priestley’s remark that, “the doctrine of the *decomposition of water* being set aside, that of *phlogiston* (which in consequence of the late experiments on water has been almost universally abandoned) will much better stand its ground.” But the fate of the Stahlian philosophy was sealed; and in 1792 Klaproth and the Berlin Academy gave in their adhesion to the new doctrines. Gren and Wiegleb in Germany, Delametherie in France, and Kirwan in England endeavored but in vain, to support the phlogistic theory; and ere long Lavoisier’s innovations could be regarded not simply as the anti-phlogistic, but as the universally accepted system of chemistry.

“It was the glory of Lavoisier,” wrote Davy in 1814, “to lay the foundation of a sound logic in chemistry by showing that the existence of this principle (phlogiston), or of other principles, should not be assumed where they could not be detected.” In 1789 was published Lavoisier’s *Traité élémentaire de Chimie*, in which the new chemical doctrines were set forth with remarkable clearness and ability. A list of thirty-three “simple substances” is given in the second part of the 1st vol. of this work, wherein light and caloric are included with oxygen, azote, and hydrogen as elements of bodies; but as to whether light was a modification of caloric, or caloric a modification of light, it was impossible, Lavoisier considered, to decide. Under the head of “oxidable or acidifiable substances” he placed sulphur, phosphorus, carbon, and the muriatic, fluoric, and boracic radicals; the “oxidable and acidifiable metals” are antimony, silver, arsenic, bismuth, cobalt, copper, tin, iron, manganese, mercury, molybdenum, nickel, gold, platinum, lead, tungsten, and zinc; and the “simple earthy and salifiable substances” are lime, magnesia, baryta, alumina, and silica. Of metallic oxides, he says, “they ought not to be considered as completely saturated with oxygen, because their action on that principle is balanced by the force of attraction exercised upon it by caloric. Oxygen, then, in the calcination of metals, obeys really two forces—that exercised by the caloric and that exercised by the metal.” Davy, who by his experiments on the effects of friction on ice did much to dispel the belief in the materiality of heat, but who regarded light as a body in a peculiar state of existence, and consisting of minute particles, held the view that light in *phosoxygen* (oxygen gas) was intimately combined with oxygen.

Lavoisier was assisted in the establishment of his system by Fourcroy, Monge, Guyton de Morveau, and Berthollet. Lavoisier’s theory that oxygen was the principle of acidity was not, however, accepted by Berthollet. In 1803 appeared Berthollet’s *Chemical Statics*, in which Bergman’s conclusions with respect to the laws of the combination of acids and bases were disputed. Affinity, it was argued, could not be simply an attraction, for then no decomposition, but only an addition of constituents would take place when solutions of different compounds were mixed together; affinity might be regarded as an attraction between combining substances probably like that existing between the planetary bodies—an attraction dependent on mass, not on elective force, so that combination between

the various kinds of matter could take place in all sorts of proportions. The complete removal of a constituent of a compound by means of a decomposing agent was attributed by Berthollet to its elasticity or insolubility in the free state.

In August, 1804, Dalton communicated to Dr. Thomson his theory of the atomic composition of bodies.

The atomic theory first suggested itself to Dalton during his investigations on marsh-gas, or light carburetted hydrogen, and olefiant gas. He calculated that if the weight of carbon in each of these compounds were reckoned to be the same, then marsh-gas contained exactly twice the weight of hydrogen present in olefiant gas. He further observed that the quantity of oxygen in carbonic acid gas was twice as much as in carbonic oxide gas. These and similar facts he conceived might be explained by assuming the ultimate particles of matter to be incapable of further division, or, in other words, *atoms*, possessing definite weights, the ratios of which could be denoted by numbers, the weight of an atom of hydrogen being taken as unity. The combination of these atoms with one another would account then for the definite proportions in which the elements united.

The weight of the smallest particle of a compound was therefore, according to Dalton's theory, to be obtained by adding together the weights of its constituent atoms; the laws discovered by Wenzel and Richter were thus included within the law of atomic weights.

The new theory was promulgated in Dr. Thomson's *System of Chemistry*. In the same year Thomson showed that the amount of oxalic acid required to form strontium binoxalate was twice as great as that in the case of the oxalate, supposing the weight of strontium in each salt to be the same; and Dr. Wollaston proved that three potassium oxalates were obtainable, to form which a definite amount of potash needed weights of oxalic acid in the proportion of 1 : 2 : 4.

In 1808, the year of the publication of Dalton's *New System of Chemical Philosophy*, Gay-Lussac made known to the world the laws of the combinations of gases by volume—to which his attention had been directed by the discovery which he and A. Von Humboldt had made, that a definite volume of oxygen combined with exactly twice its bulk of hydrogen. He pointed out that there is a simple relation between the volumes of two gases which unite together, and also between their collective volume in the uncombined and in the combined condition. Thus, three volumes of hydrogen combine with one of nitrogen to form two volumes of ammonia; one volume of chlorine with one of hydrogen produces two volumes of hydrochloric acid gas; and two volumes of nitrogen and one of oxygen give two volumes of protoxide of nitrogen. The law of definite proportions was shown to hold good with respect to the volumes as well as to the weights of combining bodies.

In 1811 Avogadro, remarking that equal variations of temperature and pressure produce in all gases and vapors the same changes of volume, enunciated the hypothesis that equal volumes of any gas or vapor contain the same number of atoms, and the same doctrine was brought forward in 1814 by Ampère. On this hypothesis the density of equal volumes of gases was shown to represent the relative weight of their atoms; and thus, as it had been discovered that gases frequently do not unite volume for volume, a distinction came to be drawn between atomic weights and equivalents. If we say atom for volume, wrote Berzelius, we find in Gay-Lussac's discovery one of the most direct arguments in favor of Dalton's hypothesis.

Berzelius (1779–1848), from considerations based on

the law of combination by volume, accounted the atoms of elements distinct from their equivalents. Thus two volumes of hydrogen were recognized as the equivalents of one volume of oxygen, the relative weights of equal volumes of the two gases being those of their atoms. Berzelius adopted 100 parts of oxygen as his standard of atomic weight, the atomic weight of hydrogen was therefore 6.24, its equivalent, 12.48. He considered that the atoms of aluminium, arsenic, antimony, bromine, chlorine, fluorine, hydrogen, iodine, nitrogen, and some other elements had a weight equal to only half that of their equivalents, which latter were double and inseparable atoms. In place of the symbols used by Dalton to denote the proportions in which the elements combine by weight, he employed a notation in which letters were used to indicate the names of the elements. He introduced also an abridged notation, in which the equivalents or double atoms were represented by drawing a bar through the symbol of the element. A dot being used to signify an atom of oxygen, and HCl denoted hydrochloric acid, which was viewed as consisting of a double atom of hydrogen united to a double atom of chlorine,—an hypothesis which left unexplained the fact that the combination of the so-called double atoms of hydrogen and chlorine resulted always in the formation of two molecules, instead of one, of hydrochloric acid gas. Berzelius constructed a table of atomic weights and equivalents, which the discovery by Dulong and Petit in 1819 of the connection between the specific heats and the atomic weights of the elements, and that of the law of isomorphism by Mitscherlich in 1820 enabled him to modify and improve. The equivalent notation of Berzelius was adopted by Gay-Lussac, and displaced in time that founded upon the atomic weights; but it was not generally applied with strictness to all compounds, molecular and not equivalent formulæ being employed in some cases. It had this objection, that it masked the relative atom-fixing powers of the various acids.

Observing the ratio between the oxygen of bases and acids, Berzelius was led to the conception of the dualistic theory, according to which all compounds consist of paired constituents or groups of constituents. This theory was applied to both organic and inorganic substances, and received considerable support from the development of the doctrine of compound radicles, of which Berzelius was the chief supporter.

In 1834 Dumas made known his observations on the substitution of hydrogen by other elements; and Laurent subsequently concluded from numerous experiments that, when hydrogen is substituted by an equivalent of chlorine or bromine, these elements take the place occupied by the hydrogen, performing to a certain extent the functions of the latter in the new compound, which is therefore analogous to that from which it has been produced. Thus was given the first blow to the dualistic theory. The discovery of trichloroacetic acid by Dumas gave considerable aid in the establishment of the new doctrine; but Berzelius and others, who were unable to reconcile with the electro-chemical theory the substitution of an electro-positive by an electro-negative element, sought to explain the facts of substitution in accordance with dualistic notions.

Gerhardt, who regarded all compounds as simple molecules, certain atoms of which were displaceable by double decomposition, discarded entirely the conception of radicles. He classified organic substances according to the number of carbon atoms contained in their molecules; hence the recognition of a homologous series of organic compounds. What he termed *residues*—molecules deprived of certain of their constituents—were in many instances identical with the radicles employed by

Berzelius, but were not held necessarily to pre-exist in compounds. Gerhardt was the means of re-introducing, in a modified form, the atomic notation of Berzelius. Observing that the smallest quantities by weight of carbonic acid gas and water produced in reactions were expressed by the formulæ C_2O_4 and H_2O_2 , he concluded that these must represent the molecules of the two bodies, which might be more conveniently written CO_2 and H_2O , the atomic weights of hydrogen, oxygen, and carbon being taken as 1, 16, and 12 respectively. He made the atomic weights of bromine, chlorine, fluorine, hydrogen, iodine, nitrogen, and other of elements equal to those given by Berzelius, thus enabling the formulæ of water and most volatile compounds to be expressed in agreement with the law of Gay-Lussac; but he halved the old atomic weights of most of the metals, supposing that all metallic oxides were similar in constitution to water, or contained two atoms of metal to one of oxygen. Regnault afterwards proved that, according to the law of Dulong and Petit, this alteration ought to be made in the case only of the atomic weights of the metals lithium, potassium, sodium, and silver; many metals were accordingly to be regarded as having oxides of the general formula RO . Such metals, being compared with the diatomic radicles of organic chemistry, were called diatomic by Cannizzaro in 1858. Thus originated the idea of the polyatomicity of the metals.

The theory of types dates from the time of the discovery of trichloroacetic acid by Dumas, who observed that this body and others similarly obtained must be of the same *chemical type* with the hydrogenated substances from which they are derived. The discovery by Wurtz of the compound ammonias, and by Hofmann of diethylamine and triethylamine, led to the creation of the *ammonia type*; and Williamson, by the discovery in 1850 of the mixed ethers, was enabled to refer ether, alcohol, and acids to the *water type*, and to predict the existence of acetic anhydride, which, as well as benzoic anhydride, was discovered in 1852 by Gerhardt. To these types Gerhardt added two others, those of hydrogen and hydrochloric acid, and with the former associated the aldehydes, ketones, and many hydrocarbons, *e.g.*, the radicles discovered by Frankland and Kolbe. The theory of types was still further extended by Williamson, to whom the conception of condensed types is due; by Odling, who first suggested the idea of representing the relations of compounds by the use of mixed types; and by Kekulé and numerous other investigators.

The foundation of electro-chemical science may be said to have been laid by Nicholson and Carlisle, who in 1800 discovered the decomposition of water by the agency of the voltaic pile; but the earliest electro-chemical experiments were those made by Priestley in 1775 upon ammonia gas, and by Deiman and Van Trootswijk in 1789 upon water, by means of frictional electricity. Cruickshank, by experiments with the chlorides of magnesium, sodium, and ammonium, demonstrated that when those salts are decomposed by the electric current, alkali always appears at the negative, and acid at the positive pole.

In 1803 Berzelius and Hisinger published their observations on the electrical decomposition of salts and some of their bases; oxygen, acids, and oxidized bases, they said, appear at the positive pole; combustible bodies, alkalies, and earths at the negative. Later experimenters, however, showed that it is the metal, not the oxide, that appears at the negative pole when salts are electrolyzed, and that oxides cannot be supposed to exist ready formed in salts. Davy, whose electrical experiments were commenced in 1800, undertook in 1806 a course of investigations which led him to the discovery

of the metals of the alkalies and alkaline earths. In 1807 he expressed the opinion that bodies having an affinity for one another are in different states of electricity, and "that chemical and electrical attractions depend upon the same cause, acting in the one case on particles and in the other on masses of matter."

In 1834 Faraday discovered that the decompositions effected by the voltaic current indicate the quantity by weight in which the elements combine, or the weights of the atoms of the atomic theory, thus adding to the probability of the correctness of the supposition that the operations of the same agent are exhibited in both chemical and electrical phenomena. Latterly, the discovery of the action of the copper-zinc couple by Gladstone and Tribe has opened out a new field of electro-chemical research, already productive of important results. To mention, however, the numerous advances that have been made in recent times, whether in chemical physics or in chemistry proper — especially as regards the constitution and synthesis of the compounds of carbon — would be to exceed the scope of the present introductory notice. The reader must, therefore, be referred to the treatises and original memoirs of those whose labors have affected the modern development of chemistry, and have raised it to the high position which it occupies as a science at the present time.

The examination of all the various substances met with in nature has led to the discovery of sixty-four different bodies, from which it is impossible by any means *now* at our disposal to separate simpler substances; they are consequently termed "elementary or simple bodies," or "elements." It is not asserted that such substances are absolutely simple, or that they may not be found hereafter to yield more than one kind of matter, but merely that so far as our knowledge extends it is so; indeed, recent spectroscopic researches favor the impression that some at least of the elements are, perhaps, compounds of simpler bodies.

It is the study of the laws which regulate the combination of the elements with one another, and to which their compounds are subject in their mutual actions, and of the properties of the elements and of the compounds formed by their union, which constitutes the science of chemistry.

The majority of the elements are of comparatively rare occurrence, whilst many of them are extremely rare, being met with only in certain localities. Gold and a few others almost always occur as such, and our atmosphere, we know, consists chiefly of the two elements, oxygen and nitrogen, in the free state; also some other, such as carbon, copper, silver, and sulphur, are occasionally met with in the uncombined state, but in general two or more elements are found united. The number of elements of which the materials are made up which principally compose the earth and the plants and animals living upon it is, however, exceedingly small. Thus, plants consist chiefly of carbon, hydrogen, and oxygen, and animals chiefly of these three elements together with nitrogen; water consists entirely of oxygen and hydrogen. The solid earth is mainly composed of substances such as quartz or silica, chalk or limestone, and various silicates like felspar and clay, — the elements which are the chief constituents of these substances being oxygen, silicon, carbon, calcium, magnesium, aluminum, iron, and potassium. The only elements which appear to be absolutely essential to vegetable or animal life are carbon, oxygen, hydrogen, nitrogen, sulphur, phosphorus, calcium, iron, potassium, sodium, magnesium, silicon, and chlorine; and the remainder are to us, so to speak, merely of artificial value.

Four of the elements — chlorine, hydrogen, nitrogen, and oxygen — are gases; and fluorine, which is not

known with certainty in the free state, is probably also a gas; two more are liquid at ordinary atmospheric temperatures, viz., mercury and bromine; and the element gallium, recently discovered in certain zinc ores, but as yet obtained only in very small quantities is also said to be a liquid. The remaining elements are solids.

The proportions in which elements unite together are definite and constant, a given compound always consisting of the same elements united in the same proportions. Chloride of silver, for example, in whatever manner it may be prepared, invariably consists of chlorine and silver in the proportions by weight of 35.36 parts of the former and 107.66 of the latter.

But it is often the case that elements combine together in several proportions; whenever this occurs the several proportions in which the one element unites with the other bear a simple relation to one another.

The proportion in which two elements combine with a third also represent the proportions in which, or in some simple multiple of which, they will themselves combine.

In explanation of these three laws, deduced entirely from experimental observations, chemists have adopted the atomic or molecular theory, which was first introduced into the science by Dalton at the commencement of this century. According to this theory the exceedingly small masses or *molecules* of which it is supposed matter consists are composite, being made up of indivisible particles or *atoms* (see the article ATOM). The molecules of the elements are assumed to consist of similar atoms, whereas those of compounds are congeries of dissimilar atoms; and the molecules which constitute a given kind of matter, it is supposed, are alike in weight and general properties, but differ from those of which all other kinds of matter are composed, so that every molecule belongs to one of a definite number of species. The study of the alterations which take place in the composition of molecules under the influence of various forces, and which result from their action upon one another, is the work of the chemist; whilst it is the province of the physicist to study the influences of those forces upon matter which affect entire molecules without in any way altering their composition.

The chemist has no means of ascertaining, nor does he attempt to ascertain, the absolute weights of the atoms or the molecules of the various elements and their compounds; he concerns himself merely with their relative weights, hydrogen being adopted as the standard of reference since it is the lightest of all known elements. The determination of the exact atomic weight of an element is an operation of extreme difficulty, and one requiring the greatest analytical skill, so that as yet the atomic weights of only a limited number of elements have been ascertained with more than approximate accuracy. The most accurately determined atomic weights are those of hydrogen, oxygen, nitrogen, chlorine, bromine, iodine, lithium, potassium, sodium, silver, and thallium. Apparently the numbers obtained for these elements are practically perfect.

The manner in which the relative weights of the atoms of the elements are determined will be evident from the following considerations:

If, instead of comparing together the relative weights of the elements which enter into combination, the volumes which they occupy in the state of gas (at the same temperature and under the same pressure) before and after combination are compared, it is found that gases always unite together in very simple proportions, viz., either in equal volumes, or in volumes which bear some simple relation such as 1 : 2, 1 : 3, 1 : 4, 2 : 3, &c.

Moreover, whatever the number of volumes before combination, it always is reduced to two on combination. Thus, equal volumes of hydrogen and chlorine gases unite without condensation to form hydrochloric acid gas; in the production of water 2 volumes of hydrogen and 1 of oxygen combine, but form only 2 volumes of water-gas or steam; and if ammonia gas be decomposed by heat or a series of electric sparks, 2 volumes of the gas yield 3 volumes of hydrogen and 1 of nitrogen.

Now, according to the law of Boyle and Mariotte, the volume of a given mass of any gas varies inversely as the pressure, provided that the temperature remains the same.

According to the law of Charles and Gay-Lussac, on the other hand, all gases expand equally by heat, provided the pressure remains constant,—the rate of expansion being $\frac{1}{273}$ of the volume at 0° C. for the rise of 1° C. in temperature; or, in other words, the volume of a gas varies directly as the absolute temperature.

A gas which strictly conforms to these two laws is said to be a perfect gas, but none of the gases with which we are acquainted are perfect in this sense.

In the formation of hydrochloric acid gas equal volumes of chlorine and hydrogen unite without condensation. The density of chlorine gas referred to hydrogen is 35.36, and the simplest possible hypothesis of the composition of hydrochloric acid is that it consists of an atom of hydrogen weighing 1, and an atom of chlorine weighing 35.36, so that its molecule, therefore, must weigh 36.36. But since the density of hydrochloric acid gas is ascertained by experiment to be only 18.18 as compared with that of hydrogen, and, according to Avogadro's hypothesis, equal volumes of hydrogen and hydrochloric acid gas contain equal numbers of molecules, it follows that the weight of the hydrogen molecule as compared with that of hydrochloric acid must be 2, or in other words, *that the hydrogen molecule consists of two atoms*. The chlorine molecule in like manner must consist of two atoms, each weighing 35.36, and in the formation of hydrochloric acid from hydrogen and chlorine two molecules of hydrochloric acid are produced from a molecule of hydrogen and a molecule of chlorine: in the one molecule half the hydrogen is displaced by chlorine, in the other half the chlorine is displaced by hydrogen. It may be proved that the assumption is correct that the molecule of hydrochloric acid contains only a single atom of chlorine, weighing 35.36, and that it does not consist, for example, of two atoms of chlorine each weighing 17.68, by comparing the various volatile compounds containing chlorine. In the first place their densities in the state of gas are determined, and a knowledge is thus determined of the relative weights of their molecules as compared with that of the hydrogen molecule; the percentage of chlorine they contain is then ascertained by careful analysis. The density referred to hydrogen as unity multiplied by 2 gives the molecular weight of the compound; and the percentage of chlorine being known, the amount contained in the quantity expressed by the molecular weight is ascertained by a simple calculation. For example, the density of sulphur chloride is found to be 57.36, and its molecular weight is therefore 57.36×2 or 114.72; it contains 61.64 per cent. of chlorine, so that in 114.72 parts there are 70.72 of chlorine. When the numbers thus deduced are compared it is seen that the lowest amongst them is 35.36, and that all the higher numbers are simple multiples of this; 35.36 is accordingly adopted as the number which expresses the weight of the atom of chlorine relatively to that of the hydrogen atom.

In like manner, on comparing the various volatile compounds which contain oxygen, it is found that the

number 16 represents the least weight of oxygen contained in the molecular weight of any of its compounds; 16 is therefore taken as the atomic weight of oxygen.

The determination of the density of bodies in the state of gas is thus an operation of fundamental importance. The precise manner in which the determination is effected is described in most of the text-books on chemistry. The methods ordinarily employed in the case of liquids and solids which by the application of heat can be converted into vapor or gas without undergoing decomposition are known respectively as Dumas' and Gay-Lussac's; a modification of the latter method of great value has recently been introduced by Hermann.

The equivalent of an element—that is to say, the amount of it which is capable of combining with or displacing one part by weight, or one atom of hydrogen—being known, its atomic weight is not absolutely fixed by the determination of the density in the state of gas of its compounds with other elements; we are at most enabled to say from this that the atomic weight cannot exceed a certain value,—for instance, that the atomic weight of chlorine cannot exceed 35.36, because all its compounds contain either this amount or some simple multiple of it in their molecules. It is nevertheless *possible* that 35.36 is not the weight of one but of several atoms of chlorine; the probability that 35.36 is the true atomic weight is enormously increased, however, as compound after compound is examined and found to contain 35.36 or some simple multiple of 35.36 parts of chlorine in its molecule.

In the case of those elements of which stable volatile compounds have not been obtained, the study of their specific heats is of great importance, and moreover furnishes most important confirmation of the atomic weights deduced by the aid of Avogadro's hypothesis. To raise the temperature of equal weights of different substances the same number of degrees, from 0° to 1° C. for instance, very different amounts of heat are required; and on the other hand very different amounts of heat are given out when equal weights of different substances are cooled from the initial temperature t° to a lower temperature t'° . Of all bodies, except hydrogen, water has the greatest capacity for heat, and is, therefore, adopted as the standard of reference,—the number which expresses the amount of heat necessary to raise the temperature of a given weight of a body a certain number of degrees, or which is given out by it in cooling through a certain number of degrees, as compared with that required to raise the temperature of an equal weight of water the same number of degrees, being termed its specific heat. Thus, the specific heat of lithium is .9408; that is to say, to raise the temperature of a given weight of lithium—1 gramme, for example—from 0° to 1° C. only requires .9408 of the heat necessary to raise the temperature of 1 gramme of water from 0° to 1° C.

In consequence of the relation between the specific heat of an element and its atomic weight, we can readily determine the atomic weights of elements which do not furnish volatile compounds, it being merely necessary to ascertain the equivalent of the element by analyzing its compounds, and to multiply the equivalent by such a number that the product when multiplied by the specific heat of the element will furnish a number not less than 5.5 and not much greater than 6.5.

The only elements of which at present the atomic weights have not been ascertained, either by the vapor-density or specific heat method, are erbium, thorium, uranium, and yttrium. Even the equivalent of gallium is not yet known.

We have pointed out that it is to be supposed that the molecule of hydrogen consists of two atoms; hence, if the atomic weight of hydrogen be taken as 1 its molecular weight is 2. In order to ascertain the molecular weights of other elements—that is to say, the relative weights of their molecules referred to that of hydrogen—it is merely necessary to determine their densities referred to hydrogen as unity, and then to multiply the densities by 2. Unfortunately, owing to the high temperature at which most of the elements are converted into vapor, the densities of only very few of them are as yet known.

When, however, the molecular weights of the elements are compared with their atomic weights it is found that they are not always, as in the case of hydrogen, double their atomic weights; hence, it is inferred that the molecules of elements do not all contain two atoms. In a few cases the atomic weight and molecular weight agree, which necessitates the conclusion that the molecules are monatomic or consist of a single atom; in a few other cases the molecular weight is either four or six times the atomic weight, and the molecules are therefore regarded as tetratomic or hexatomic.

The elements are usually divided into two great classes, the metallic and the non-metallic elements. The metals are mostly bodies of high specific gravity; they exhibit, when polished, a peculiar brilliancy or metallic lustre, and they are good conductors of heat and electricity; whereas the non-metals are mostly bodies of low specific gravity, and bad conductors of heat and electricity, and do not exhibit metallic lustre. The non-metallic elements are also sometimes termed metalloids, but this appellation, which signifies metal-like substances, strictly belongs to certain elements which do not possess the properties of the true metals although they more closely resemble them than the non-metals in many respects; thus, selenium and tellurium, which are closely allied to sulphur in their chemical properties, although bad conductors of heat and electricity, exhibit metallic lustre and have relatively high specific gravities.

But when the properties of the elements are carefully contrasted together it is obvious that no strict line of demarcation can be drawn dividing them into two classes; and if they are arranged in a series, those which are most closely allied in properties being placed next to each other, it is evident that there is a more or less regular alteration in properties from term to term in the series.

When binary compounds, or compounds of two elements, are decomposed by an electric current, the two elements make their appearance at opposite poles. Those elements which are disengaged at the negative pole are termed electro-positive, or positive, or basylous elements, whilst those disengaged at the positive pole are termed electro-negative, or negative, or chlorous elements. But the difference between these two classes of elements is one of degree only, and they gradually merge into each other; moreover the electric relations of elements are not absolute, but vary according to the state of combination in which they exist, so that it is just as impossible to divide the elements into two classes according to this property as it is to separate them into two distinct classes of metals and non-metals.

Elements which readily enter into reaction with each other, and which develop a large amount of heat on combination, are said to have a powerful affinity for each other. The tendency of positive elements to unite with positive elements, or of negative elements to unite with negative elements, is much less than that of positive elements to unite with negative elements, and the greater the difference in properties between two elements the

more powerful is their affinity for each other. Thus, the affinity of hydrogen and oxygen for each other is extremely powerful, much heat being developed by the combination of these two elements; when binary compounds of oxygen are decomposed by the electric current, the oxygen invariably appears at the positive pole, being negative to all other elements, but the hydrogen of hydrogen compounds is always disengaged at the negative pole. Hydrogen and oxygen are, therefore, of very opposite natures, and this is well illustrated by the circumstance that oxygen combines, with very few exceptions, with all the remaining elements, whilst compounds of only a very limited number with hydrogen have been obtained.

Hydrides.—The only elements which are known to form binary compounds with hydrogen are fluorine, chlorine, bromine, iodine, oxygen, sulphur, selenium, tellurium, carbon, silicon, nitrogen, phosphorus, arsenic, antimony, and copper.

Oxides.—The element oxygen is known to form compounds with all the elements excepting fluorine, but the affinity of the various elements for oxygen, and consequently the stability of the compounds resulting from their union with oxygen, varies within very wide limits; the oxides of many elements which have but a weak affinity for oxygen can only be obtained by indirect means.

Although many of the elements unite with oxygen in several proportions, none are known to furnish more than five distinct oxides, and these belong to a certain limited number of forms, since they contain one, two, three, four, or five atoms of oxygen in the molecule. But as the same number of atoms of oxygen may unite with a given element in more than one proportion, each of these five classes includes sub-classes.

The hydrides of fluorine, chlorine, bromine, and iodine also readily enter into reaction with bases, exchanging their hydrogen for other elements; and as they also possess an acid taste and redden blue litmus, they are universally regarded as acids. The fact that these compounds are powerful acids is of considerable importance, as showing that it is the association of hydrogen with a negative radicle which renders it subject to displacement by positive elements—that is to say, a compound in which hydrogen is associated with a negative radicle will have the properties of an acid, and the more negative the radicle the more readily can the hydrogen be displaced.

The oxides of the most negative and most positive elements most readily combine with water to form acids or bases, whilst the oxides of the feebly negative or feebly positive elements either do not unite with water or form extremely unstable combinations. Similarly, the oxides of the most negative and most positive elements unite together to form stable salts, much heat being developed by their combination, whereas the oxides of feebly negative or feebly positive elements either do not unite or form very unstable salts. The several oxides of an element often differ remarkably in properties, however, one oxide exhibiting acid characters, whilst another has basic properties.

The oxides of most of the so-called metallic elements are acted upon by acids, such as sulphuric, nitric, and hydrochloric acids, a salt of the metal being formed in all cases in which corresponding salts exist, and the hydrogen of the acid being eliminated in combination with the oxygen of the oxide as water.

Chlorides — Bromides — Iodides — Fluorides. — With very few exceptions compounds of all the elements with chlorine have been obtained, and, especially from a theoretical point of view, the chlorides are a class of bodies of the highest importance. The affinity of

bromine and iodine for other elements being much lower than that of chlorine, and their compounds much less stable than the corresponding chlorides, comparatively few bromides and iodides are known. Fluorides of many of the elements have also been obtained.

Chlorine unites with many of the elements in two or more proportions, but at most six atoms of chlorine unite with a single atom of another element. The majority of the chlorides are either liquids or solid bodies which may be more or less readily volatilized.

ORGANIC CHEMISTRY.

It was at one time thought that certain chemical compounds were producible only through the agency of living things, and the name "organic chemistry" was in consequence conferred upon this branch of the science. The progress of discovery has, however, served to break down the barrier that was supposed to exist between those and purely inorganic compounds, since it has been found possible to build up artificially a very large number of compounds formerly regarded as essentially organic. Nor must it be forgotten that many living things elaborate compounds which can in no sense be regarded as organic—such as the silica of grasses, the carbonate of calcium secreted by molluscs, &c., and the tricalcic phosphates forming the bones of the higher animals.

Although the number of elements entering into the composition of organic compounds is comparatively small, yet these compounds far exceed inorganic bodies both in number and complexity of composition. It is indeed the vast and ever-increasing numbers of the organic compounds that render it necessary to form a separate branch of the science for their study, and not any real *chemical* difference between the matter forming these and mineral compounds.

Definition and Character of Organic Compounds.—Carbon is an invariable constituent of organic bodies, so that this branch of the science is sometimes defined as "the chemistry of the carbon compounds." The best chemical definition of organic compounds, however, is that proposed by Frankland, viz., "compounds the molecules of which consist of one or more atoms of carbon *directly* combined either with carbon, nitrogen, or hydrogen."

After carbon, the elements of most frequent occurrence in organic compounds are hydrogen, oxygen, and nitrogen. Sulphur, phosphorus, the halogens, silicon, boron, and the metals are of comparatively rare occurrence. The number of atoms entering into the composition of organic molecules is often very great—far exceeding the atoms of the most complex molecule of a mineral substance. Thus, stearin contains 173 atoms, and albumin no less than 226. Chemical bodies that are possessed of great complexity of composition are generally distinguished by the facility with which they split up under the influence of the physical forces and chemical reagents; thus organic compounds are as a class characterized by their instability.

CHEMNITZ, a town of the kingdom of Saxony, in the circle of Zwickau, 50 miles W.S.W. of Dresden by rail, in a beautiful plain at the foot of the Erzgebirge, watered by the River Chemnitz, an affluent of the Mulde. It is the first manufacturing town in the country, and in population ranks next to Dresden and Leipsic. Though in general well built and possessing a large number of handsome edifices, it has comparatively few of special interest; among the most important are St. James's church, the ancient town house, the post office, the theatre, the new realschule, and the exchange. It contains a Roman Catholic and five Protestant churches, and has three civic schools, a gymnasium, a royal industrial school, of great repute throughout Saxony, a

school of practical designing, and an extensive Sunday school under the direction of the workmen's union. It is the seat of several large administrative offices, and a chamber of commerce and industry; and among its societies are two scholastic associations, a merchants' union, a scientific association, and an architectural and artistic society. The cotton goods, and especially the stockings, for which it is mainly celebrated, rival those of England in quality and cheapness; and it is also famous for the manufacture of spinning-machinery. There are nineteen distinct establishments for the weaving of woollen and half-woollen cloth; and 3400 hand-loomers are engaged in the same trade. The stocking weaving is prosecuted by sixty-three firms, partly in regular factories and partly by the domestic system. The dye-works number thirty-three, the print-works eight, the bleach-works six, and the chemical works six. There are about eighty establishments for engineering operations, one of which, founded about 1844 by Richard Hartmann, employs 4000 workmen, and manufactures steam-engines of all descriptions, mining and boring apparatus, boilers, and a great variety of implements. The export trade is, of course, very extensive; and in 1889 the value of the goods despatched to America alone amounted to \$7,500,000. There is abundant railway communication in all directions. The population in 1849 was 30,753; in 1864, 54,875; and in 1889, 130,000. With very few exceptions, the people are all Protestants. Chemnitz is frequently spoken of as the "Saxon Manchester," and is extending its trade very rapidly.

Chemnitz was originally a settlement of the Sorbian Wends, which received its first Christian Church from Otto I. in 938. In the 12th century it obtained municipal rights from Lothaire II., and from the 13th to the 17th century it ranked as an imperial city. From its very commencement its prosperity was due mainly to its manufacturing industry, the nucleus of which seems to have been the linen-weaving of the Wends. To this were added extensive bleaching and woollen cloth establishments, which raised the town to great importance in the 15th century. In 1539 the Reformation was introduced, and 1546 saw the dissolution of the great Benedictine monastery which had been founded in 1125 by Lothaire at Schloss Chemnitz, about 2 miles north of the city. In the Thirty Years' War the city was plundered by both Swedes and Imperialists, and its trade was almost completely ruined. By the close of the century, however, it began to recover, chiefly through the introduction of cotton-weaving, which as early as 1739 employed 2000 looms. In 1775 the English quilt manufacture was commenced, and in 1799 the Arkwright system of cotton-weaving. After the peace of Paris there was another period of decay; but a revival set in about 1834 when Saxony joined the customs union. The cotton manufacture suffered considerably during the American Civil War, but by no means so severely as in the English towns.

CHEMNITZ, MARTIN (1522-1586), probably the ablest Lutheran theologian of the period immediately succeeding that of Luther himself, was born at Treuenbitzen in the mark of Brandenburg, on the 9th November, 1522. His father, though of noble rank, was in somewhat straitened circumstances, and Martin's education was frequently interrupted owing to pecuniary difficulties. In his fourteenth year he was sent to school at Wittenberg, where he had frequent opportunities of hearing Luther preach. He studied at the universities of Magdeburg (1539-42), Frankfort-on-the-Oder (1543), and Wittenberg (1545), devoting himself specially at the last of these, under the advice of Melancthon, to mathematics and astrology. In 1547 he removed to

Königsberg, where he was appointed in the following year rector of the cathedral school, and two years later (1550) librarian to Duke Albert of Prussia, whose patronage he had gained through his acquaintance with astrology. It was during his residence at Königsberg that Chemnitz first turned his attention seriously to theology, and that he first had an opportunity, in the celebrated controversy with Osiander on the doctrine of justification by faith, of displaying the polemical ability in which he was scarcely surpassed by the greatest of the Reformers. Osiander, who assailed the forensic and objective element in the Lutheran doctrine, was favored by Duke Albert, and, as the controversy increased in intensity, Chemnitz judged it expedient to resign his post of librarian and leave Königsberg. In 1553 he returned to Wittenberg, and immediately commenced to deliver lectures at the university on the *Loci Communes* of Melancthon. These formed the basis of his *Loci Theologici* (Frankfort, 1591), a work which furnishes one of the best existing expositions of the Lutheran theology, as formulated and modified by Melancthon. His audience was from the first exceptionally large, and a career of great influence seemed open to him at the university, when he was induced to make another change by accepting the office of pastor of the church in Brunswick, to which he removed in 1554. In this position he spent the remainder of his life, though he received numerous offers of important offices from various Protestant princes of Germany. He was unusually active in the duties of his charge, and he also took a leading part in the theological controversies of the time, always representing and defending strictly Lutheran views. In fact, it is in no small degree to his personal influence, exerted as it was at the critical period of its history, that the Lutheran Church owed the purity of its doctrine and the compactness of its organization.

Chemnitz resigned office, owing to infirm health, in 1584, and died at Brunswick on the 8th of April, 1586.

CHÉNIER, ANDRÉ-MARIE DE (1762-1794), French poet, was born at Constantinople, where his father, Louis de Chénier, author of several works on Oriental history, was consul-general. Sent in infancy to France, he lived till his ninth year at Carcassonne, under care of a paternal aunt; and in 1773, on his father's return, he was placed at the Parisian College de Navarre. At sixteen he was rhyming from Sappho and reading the Greek authors. At twenty (1782) he obtained a sub-lieutenancy in the regiment of Angoumois, then in garrison at Strasburg. He left Paris, and reported himself at headquarters. But military life had no charm for him, and neither the neighborhood of Brunck, whose *Analecta* was one of his favorite books, nor the classic tradition of the Alsatian capital, could bind him to his calling; in six months he threw up his commission and returned to Paris. There he studied hard, and wrote idylls; he sketched out plans of great poems; he sat and talked with Palissot, David, and Pindar-Lebrun. A serious illness was induced by excess of work; to complete his recovery he set out, in company with the brothers Trudaine, towards the end of 1784, for Switzerland, Italy, and the Archipelago. In 1786 he returned to Paris, plunged into study anew, and conceived the passion for Madame de Bonneuil, which inspired so many of the perfect elegiacs afterwards to win regard and imitation from Hugo himself.

He was five-and-twenty, and at heart a Greek. The Idyllists and Anthologists were his masters. From their styles did he compound his own; and from them did he learn the exquisite purity of form, the admirable restraint, the chastened vigor of thought and diction, that render him preëminent among modern poets.

And with the *Élégies* and *Art d'Aimer*, which are the purely subjective fruit of this part of his life, he prepared the plans for other and greater structures. In *L'Invention*, a completed poem, he promulgated a noble theory of æsthetics; in the *Hermès*, an incomparable fragment, he made himself the Lucretius of his epoch; in *Suzanne*, which remains a mere *canevas*, he purposed to deal in the style of Milton with a Biblical episode. A few only of his friends were admitted to his feast of poesy; and he continued for some time to work and wait. But his family were anxious that he should settle in life, and a secretaryship in the French Legation at London was offered him. It cost him much to accept it, as his fine idyll *La Liberté* remains to prove; but in December, 1787, he left for England.

His residence beyond the sea was very unhappy. The duties of his place occupied him scarcely at all; and among English poets he cared only for Milton, the purely intellectual quality of whose verse seems to have been peculiarly grateful to him. In 1790 he resigned his post, and returned to France. The Revolution was in full coil; and Chénier, who worshipped liberty and loathed anarchy, threw in his lot at once with the moderate party.

He never ceased to oppose and stigmatize the action of the Jacobin section, however, and his mind was turned toward the inevitable end. It came at last. At Passy (6th January, 1794,) his opposition to the arrest of a Madame de Pastoret, with whom he was staying, led to his own seizure and to his incarceration in the Saint-Lazare. A durance of some months ensued; he wrote for Mademoiselle de Coigny, duchess of Fleury, the beautiful elegy, *La Jeune Captive*, and for the Convention the furious iambics so often read and quoted. At the tribunal he appeared with forty-four others; thirty-eight were condemned to death. On the morrow (25th July, 1794) with Roucher the poet, Trenck, and the Counts de Montalembert and de Créqui, André Chénier was taken to death.

The poems of André Chénier, with the exception of the *Dithyrambe* and the *Ode to Charlotte Corday*, both of which saw light during his life, remained unedited for five-and-twenty years. A selection from his manuscripts was published at last, with retouches, by Henri de Latouche, the novelist and journalist. The moment was opportune; young France was in revolt against the bastard classicism of the great century, and Chénier became a force in modern letters. Sainte-Beuve has compared his influence over the poets of the romantic movement of the second Renaissance — an influence that restrains and chastens — to that of Ingres over its painters. His greatest excellence now is one of form; and this is said entirely without prejudice as to his matter. His sympathy with Milton is a striking fact in his intellectual character, and one that will help not a little to a just appreciation of his poetical qualities.

CHÉNIER, MARIE-JOSEPH DE (1764-1811), poet and dramatist, was a younger brother of André Chénier, and, like him, was born at Constantinople, reared at Carcassonne, and educated at the Collège de Navarre. Entering the army at seventeen, he left it soon afterwards; and at twenty he produced *Azémire*, a tragedy, which had a languid sort of success. His next venture, *Charles IX.*, which commenced the renown of Talma, excited an extraordinary enthusiasm (1789), and still keeps the stage. In 1791 appeared *Henri VIII.* and *Calas*, with the performance of the first of which the Théâtre de la République was solemnly inaugurated; in 1792 he produced his *Caius Gracchus*, which was proscribed and burned at the instance of Albitte for an anti-anarchical hemeistich (*Des lois et non du sang!*); and in 1793 his *Timoléon*, set in Méhul's music, was

also proscribed. His brother's death on the scaffold is supposed to have diverted him from the theatre; and only once again, in 1804, with his unsuccessful *Cyrus*, did he attempt the scene. Long a prominent member of the Jacobins' Club, Joseph Chénier was one of the busiest of literary politicians, one of the most prolific of political poets.

CHEOPS, the name of an Egyptian king *Khufu*, called Cheops by Herodotus, Chambers by Diodorus, Souphis by Manetho, and Saophis by Eratosthenes. He was the second king of the fourth dynasty of Manetho, and the builder of the Great Pyramid at Gizeh, 120 stadia distant from Memphis and about 45 from the Nile. According to Diodorus, each side was 7 plethra, long, and the height 6 plethra; or according to Herodotus, each side of the base was 8 plethra in extent, and the height the same. The former sides are supposed to have been each 764 feet long, their present dimensions being about 746 feet, while the actual present height is 450 feet, and the angle of the casing stones $51^{\circ} 50'$, according to the measurements of Perring. This wonder of the ancient world, the sepulchre of the monarch, was constructed at great expense and suffering, 100,000 men, changed every three months, being employed by forced labor ten years in constructing the causeway by which blocks of stone were transported from the Tourah quarries, in the Arabian chain, to a quay on the banks of the Nile, where they were transported by boat from the other bank. Immense expense was entailed in the execution of this costly sepulchre, and according to a popular but improbable tradition, Cheops was compelled through want of money to sacrifice the honor of his daughter to complete the task. Cheops carried on war at the Wady Magarah in the Peninsula of Sinai in Arabia, and a rock tablet represents him as having conquered the hostile tribes in the presence of the god Troth, who had revealed the mines of the locality. His oppression had so afflicted Egypt that charges of impiety had attached to his name; but the tombs of his children reveal no change in the established religion, and his pyramid only differs from those of his predecessors and immediate successor by its rather larger size and greater beauty. His name Khufu, sometimes with the addition of that of the god Khnum as Khnum-Khufu, has been found on several monuments, and was found scrawled on the stones from the quarries of Tourah or the Mons Troicus employed in the so-called chambers of construction of the Grand Pyramid. The date of Cheops according to Lepsius is 3095-3032 B. C., but great difference of opinion, amounting to nearly 2000 years, exists as to the time of Menes, from whom the lists separate him by the interval of 898 years. Priests of the Apis and Mnevis bulls are mentioned in the tombs of his period.

CHEPHREN, an Egyptian monarch, called in the hieroglyphs Khafra, by Herodotus Chephren, by Diodorus Cephren or Chabrias, by Manetho Souphis II., and by Eratosthenes Saophis II. He was, according to the legends, the son or brother of Cheops, and acted in the same tyrannical manner. Chephren built the second of the great pyramids at Gizeh close to the Sphinx and the Great Pyramid, and was said to be hated like his brother, his mummy not buried in the sepulchre but torn to pieces, and the sarcophagi emptied of their contents. The present length of the base of this pyramid is 690 feet 9 inches long, and its perpendicular height 447 feet 6 inches, its angle $52^{\circ} 20'$, but it is not built with the same care. The wife of Chephren, named Merisankh, was priestess of the god Thoth, and Kheman, another prince of the family, priest of Thoth at Hermopolis. There is no reason for believing in the impiety of the monarch, or any oppression more than in the case of his

predecessors and successor, all whose tombs were pyramids. Chephren also built the small temple behind the great Sphinx, but does not appear amongst the monarchs recorded at the Wady Magarah. The lists of Abydos interpose a king called Ra-tatef or Tatefra, between Cheops and Chephren, but his reign was probably short and insignificant, and he may have been the brother of Cheops. According to Herodotus, Chephren reigned 50, according to Manetho 66, and according to Eratosthenes 27 years, the longest time being probably correct. From fragment 30 of the hieratic canon of Turin it is probable that he lived 95 years, and his reign, according to Lepsius, was from 3032-2966 B.C. A splendid diorite statue of Chephren is in the museum of Boulaq, and others, broken and thrown long ago into the well of the temple near the Sphinx, supposed to have been destroyed by popular hatred with the remains of the tombs of his family in the Gizeh cemeteries, are the principal monuments of his reign. It is just possible a bull Apis was buried in his pyramid.

CHEPSTOW, a market-town and river-port of England, in the county of Monmouth, on the Wye, two miles from its junction with the Severn, and 135 miles from London. It occupies the slope of a hill on the western bank of the river, and is environed by scenery of much beauty and grandeur. Population, 4,000.

CHEQUE. A check on a banker is in legal effect an inland bill of exchange drawn on a banker payable to bearer on demand. A check is consequently subject in general to the rules which regulate the rights and liabilities of parties to bills of exchange. Commercial usage has, however, imposed on cheques certain qualities which do not attach to other bills of exchange.

A check is payment unless dishonored; but on the question whether a debt has been paid, it is not sufficient to produce a check drawn by the debtor in favor of the creditor, and paid by the banker, unless it can be shown to have passed through the creditor's hands. Where a check has been fraudulently altered, and a banker pays a larger sum than that originally written, he must bear the loss, and cannot charge his customer unless some act of his facilitated the forgery. Where a check was filled up in such a way as to make deception easy, the customer was held responsible for the loss.

CHER, a central department of France, embracing the eastern part of the ancient province of Berry and part of Bourbonnais, bounded N. by the department of Loire, W. by Loir-et-Cher and Indre, S. by Allier and Creuse, and E. by Nièvre and Loire. The surface of the department in general is extremely level, the only elevated districts being on the northern and north-western frontiers, which are skirted by a range of low hills. The principal rivers, besides the Cher and its tributaries, are the Grande Sauldre and Petite Sauldre on the N., but the Loire and Allier, though not falling within the department, drain the eastern districts, and are available for navigation. The department contains a comparatively large extent of pasturage, which has given rise to a considerable trade in horses, cattle, sheep, and wool for the northern markets. Among the agricultural productions hemp holds the first place; but wine, fruits, chestnuts, and truffles are also important articles of traffic. The total population is 335,392.

CHERASCO, a town of Italy in the province of Cuneo and district of Mondovia, near the junction of the Stura and the Tanaro, 30 miles south-east of Turin, with which it is connected by railway. Pop., 9,000.

Cherasco (*Clerascum*, or *Cairascum*) is only two miles from the site of the old Roman town of *Pollentia*, where there are still remains of a theatre, an amphitheatre, a temple, and other buildings.

CHERBOURG, a naval station, fortified town, and

seaport of France, in the department of La Manche, on the northern shore of the peninsula of Cotentin, at the mouth of the small River Divette. It stands on a bay formed by Cape Levi on the E. and Cape La Hogue on the W., and is distant 75 miles from the Isle of Wight, 41 miles W. by N. from St. Lo, and 212 in the same direction from Paris. The town in itself is small and unimportant. Cherbourg derives its chief importance from its naval and commercial harbors, which are distant from each other about half a mile. The former is cut out of the rock, and is capable of accommodating fifty men-of-war of the largest size. The depth of water at full tide is 50 feet, at low tide 25 feet. Connected with the harbor are the dry docks, the yards where the largest ships in the French navy are constructed, the magazines, the rope walks, and the various workshops requisite for a naval arsenal of the first class. The works are carefully guarded on every side by redoubts and fortifications, and are commanded by batteries on the surrounding hills so completely that the harbor of Cherbourg may be pronounced one of the strongest in the world. The commercial harbor at the mouth of the Divette communicates with the sea by a canal 650 feet in length and 54 in width. It consists of two parts, an outer harbor 262 yards long by 218 wide, and a basin 446 yards long and 138 wide, in which the depth of water is 19 feet at low tide, and was increased by the dredging operations commenced in 1874. Outside these harbors is the triangular bay, which forms the roads of Cherbourg. This bay is admirably sheltered by the land on every side but the north. To protect the shipping from the violence of the north winds the great *digue*, or breakwater, has been constructed. This immense work is $2\frac{1}{3}$ miles in length; its breadth at the base is 262 feet, and at the summit 101 feet. Its foundation was formed by massive wooden frames, which were sunk and filled with stones; and it is now protected from the waves by a parallel line of large blocks weighing each 44 tons. The industrial activity of Cherbourg is considerable, its principal products being cotton yarn, refined sugar, soda, leather, and chemicals. The population amounts to 35,000.

CHERIBON, or SHERIBON, a seaport town on the north coast of Java, capital of a residency of the same name, and the seat of a Dutch governor, is situated at the head of a wide bay 125 miles E.S.E. of Batavia, in $6^{\circ} 48'$ S. lat. and $108^{\circ} 38'$ E. long. It was formerly a place of importance, but it has never fully recovered from the effects of a disastrous plague which visited the place at the beginning of this century. The town and harbor are defended by a fort called the Beschermer or Protector which also serves as a convict prison. A church, founded 1842, is used in common by Protestants and Roman Catholics; the Mussulman population has its mosque, and the Chinese their *kling-ting* or temple. A school for European children was opened in 1824, and a Government school in 1854. The Chinese district is pretty populous, but no estimate exists of the actual number. At some distance from the town are the graves of the sultans, among whom the most remarkable is Ibnu Mulana, who introduced the Mahometan religion here in 1406. The district is very fertile, and produces the finest coffee raised in the island. Timber, cotton, indigo, sugar, and pepper are exported in large quantities. Population of district, 800,000.

CHEROKEE INDIANS, a North American tribe, which formerly inhabited the upper valley of the Tennessee and portions of the Carolinas and Georgia. They first came in conflict with the white settlers in 1759-63, and in the Revolutionary War acted with the English. Most of them were removed to the Indian Territory in 1838, but several thousands still occupy reservations in

North Carolina. In the civil war they all at first sided with the South, but before long a strong party joined the North, and this led to a disastrous internecine struggle. On the close of the contest they were confirmed in the possession of their territory, but were forced to give a portion of their lands to their emancipated slaves. Since then they have peacefully advanced in prosperity and civilization, and under the influence of the Moravian, Baptist, Methodist and Congregational missions they have been partially Christianized. They live in well-built villages, and maintain industrial habits. Their territory is distributed into eight districts; and their chief town is Tahlequah, situated in the southeast corner of the country. A newspaper is published in the capital in English and Cherokee, and a literature is being gradually formed. Their language consists of two dialects—a third, called Gidoowa, having been lost. The syllable alphabet invented in 1821 by George Guess is the character employed.

CHEROKEE STRIP, or OUTLET, the gateway to Oklahoma, extends from the 96th to the 100th parallel of west longitude, and from $36^{\circ} 11'$ to 37° N. latitude. It is bounded on the north by Kansas; east by the Cherokee Nation; south by the Creek country, Oklahoma, and the Seminole lands; and west by Texas and the strip of public land known as "No Man's Land." The Strip is crossed from northwest to southeast by the Arkansas river, the main branch of which enters it a few miles east of Arkansas City, Kan. The Salt Fork of the Arkansas enters it about $98^{\circ} 50'$ and at 97° W. joins the main river, near the center of the strip. The Cinnamon river has a general course from northwest to southeast through the Strip. A branch of the Atchison, Topeka & Santa Fé railroad extends from Arkansas City south to Purcell, and a branch of the Chicago, Rock Island & Pacific runs south from Caldwell, Kan., to Pond Creek. In the west the Panhandle division of the Atchison, Topeka & Santa Fé railroad runs from about $98^{\circ} 30'$ south to the Texas border. The aborigines scattered throughout this strip of land include Osages, Pawnees, Kansas, Arapahoes, Cheyennes, and other treaty tribes. The area is 6,022,244 acres, and the land was leased by the Cherokee Nation July 7, 1883, to the Cherokee Strip Live Stock Association for a term of five years, at an annual rental of \$100,000. A new lease or "contract for grazing" was made in October, 1888, the rental being increased to \$200,000 a year. Secretary Vilas notified the Principal Chief of the Cherokees that this arrangement was subject to cancellation under the Act of Congress of March 2, 1889, which created a commission to arrange for the purchase of the lands from the Indians. Since that time there have been repeated attempts made by would-be "boomers" to acquire possession of these supposedly fertile lands. They were turned back by the United States troops and their leaders arrested. The affair was practically a replication of the Oklahoma troubles.

CHERRY (*Cerasus*). As a cultivated fruit-tree the cherry is generally supposed to be of Asiatic origin, whence, according to Pliny, it was brought to Italy by Lucullus after his defeat of Mithridates, king of Pontus, 68 B.C. As with most plants which have been long and extensively cultivated, it is a matter of difficulty, if not an impossibility, to identify the parent stock of the numerous cultivated varieties of cherry; but they are generally referred to two species, *Cerasus sylvestris*, the wild or corone cherry or gean-tree (the *mérissier* of the French) and *C. vulgaris*, the common cherry-tree (French *cerisier*). The former species appears to be indigenous on the Mediterranean coasts, and in Central Europe, including the British Islands; and it is probable that it is the latter species or some of its

valuable cultivated varieties which was introduced by Lucullus.

The genus *Cerasus* include trees of moderate size and shrubs, having smooth serrate leaves, white flowers, and a drupaceous fruit. They are natives of the temperate regions of both hemispheres; and the cultivated varieties ripen their fruit in Norway as far as 63° N. The geans are generally distinguished from the common cherry by the greater size of the trees, and the deeper color and comparative insipidity of the flesh in the ripe fruit, which adheres firmly to the "nut" or kernel; but among the very numerous cultivated varieties specific distinctions shade away so that the fruit cannot be ranged under these two heads. In the *Fruit Catalogue* published by the Horticultural Society in 1842, eighty varieties are enumerated, and to these considerable additions have since been made by cultivation both in Europe and America. The leading varieties are recognized as Bigarreux, Dukes, Morellos, and Geans. Several varieties are cultivated as ornamental trees and on account of their flowers.

The cherry is a well flavored sub-acid fruit, and is much esteemed for dessert; but it should be used cautiously, as, especially if not quite ripe, it has a tendency to disorder the bowels.

The wood of the cherry tree is valued by cabinet-makers, and that of the gean trees is largely used in the manufacture of tobacco pipes. The American red cherry, *Cerasus serotina*, is much sought after, it being compact, fine-grained, not liable to warp, and susceptible of receiving a brilliant polish. The bark of this species is very highly esteemed in America as a mild tonic and sedative medicine, and is coming into use for the same purpose in Great Britain. The kernels of the perfumed cherry, *C. Mahaleb*, are used in confectionery, and for scenting toilet soap. A gum exudes from the stem of cherry-trees similar in its properties to gum arabic.

CHERSO, an island of Illyria, included in the government of Trieste, in the Gulf of Quarnero, connected with the island of Osero by a bridge, and separated from the mainland by the channel of Farissina. It is about 35 miles in length, with an area of 105 square miles, and has about 7600 inhabitants. It is traversed by a range of mountains, forming natural terraces on which vines and olive trees flourish. The other parts of the island are covered with bushes of laurel and mastic, but there are scarcely any large trees. There is a scarcity of springs, and the houses are generally furnished with cisterns for rain water. The capital of the same name, on the western side of the island, has a cathedral, several churches and monasteries, and 4673 inhabitants. In the centre of the island, at 40 Paris feet above the level of the sea, is an interesting lake called the Vrana or Crow's Lake, which, according to the hypothesis of Dr. Lorenz of Fiume, is connected with the Island of Osero.

CHERSONESE, CHERSONESUS, or CHERRONESUS, is a word equivalent to peninsula. In ancient geography, the Chersonesus Thracica, Chersonesus Taurica or Scythica, and Chersonesus Cimbrica correspond respectively to the peninsula of the Dardanelles, the Crimea, and Jutland; and the Golden Chersonese is usually identified with the peninsula of Malacca. The Tauric Chersonese was further distinguished as the Great, in contrast to the Heracleotic or Little Chersonese at its south-western corner, where the town of Sebastopol now stands.

CHERTSEY (in Saxon *Ceortes Eye* or *Ceorta's Island*), a market-town of England, on the south bank of the Thames, in the county of Surrey, about 25 miles W.S.W. from London by railway. Population, 3,500.

CHERUBIM (plural of cherub) were "celestial genii." According to the Old Testament, the Cherub united the functions of bearer and guardian of deity; or rather, perhaps, there was a divergence in the popular beliefs on this subject. In Ps. xviii. 10, 2 Sam. xxii. 11, Yahweh (the so-called Jehovah) is described as "riding upon a cherub," and in the parallel line as "swooping," the word applied in Deut. xxviii. 49 and elsewhere to the flight of the eagle. Putting the two phrases together, we may conclude that, according to one version of the myth — whether fully believed in or not by the Psalmist need not here be discussed — the cherub was either an eagle or a quadruped with eagle's wings. On the other hand, the prophet Ezekiel (xxviii. 13-16), though agreeing with the Psalmist in mentioning but one cherub, describes him as "walking in the midst of stones of fire" (*i.e.*, thunderbolts), and as extending his wings over "the holy mountain of Elohim," in other words, as the attendant and guard rather than as the bearer of deity. And in the fuller account of Paradise in Genesis "the cherubim" (*i.e.*, the entire band of cherubs) are stationed "with (or near) the blade of the turning sword" (this, like the "tree of life," has a Babylonian analogue, and is a mythic phrase meaning the lightning, — "to guard the way to the tree of life." (Gen. iii. 24).

CHERUBINI, MARIA LUIGI ZENOBIA CARLO SALVATORE, one of the greatest musical composers of modern times, was born at Florence, 14th September, 1760. His father was accompanist (*maestro al cembalo*) at the Pergola theatre, and himself guided the first musical education of his son, whose talent began to evince itself at a very early period. Italian music at that time was at a low ebb. The popular composers of *opera seria* chiefly aimed at inventing pleasing tunes and *fioriture* for the vocal display of the singers; the dignity and grandeur of the old Italian school were all but lost. To imbue himself with the great traditions of the past was the chief aim of young Cherubini's ambition, and for that purpose he went in 1777 to Bologna, where for four years he studied under Joseph Sarti, a well-known composer and theorist of the time, and himself the pupil of the celebrated Padre Martini, one of the greatest contrapuntists Italy has produced. It was in this school that Cherubini laid the foundation of that deep knowledge of his art which gives to all his works the impress of perfect mastership. It was also under Sarti's guidance that he made his first attempts at dramatic composition. They were preceded, however, by a mass written at the age of thirteen, and various other sacred compositions. Sarti was the composer of numerous operas, amongst which *Le Nozze di Donina* may be mentioned as the most successful one. It now became Cherubini's task to supply the music for the minor characters in his master's dramatic works, an excellent way of gaining versatility of style and resource, turned to full account by the young composer. His first independent work was called *Quinto Fabio*, an *opera seria*, in three acts, first performed in 1780, and soon followed by *Armida* (1782), *Adriano in Siria* (same year), and several other works of a similar kind. At this time of his life his artistic individuality was forming gradually; but as yet he had not emerged from the purely imitative stage of production. Absolute artistic value these juvenile works do not possess, but they tended to prepare Cherubini for greater things, and in the mean time secured him a dignified position amongst contemporary composers. In 1784 he was asked to write two works for the Italian opera in London, one of which, *La Finta principessa*, was favorably received, while the other, *Giulio Sabino*, was "murdered" by the critics, to use the emphatic expression of a contemporary witness. In 1786 he left

London, whither he had gone to be present at the production of his operas, and went to Paris. After a short stay in Italy he took up his permanent residence in the latter city.

Cherubini may be cited as a striking instance of the amalgamating power inherent in the French type of national culture; Spontini, Meyerbeer, and to some extent Gluck, submitted to the same spell. With the last-mentioned master Cherubini shares the grand declamatory pathos, the classic dignity, which characterize the Augustan age of French tragedy. A work like Cherubini's *Médée* is imbued with the same elevation of pathos which in Corneille's greatest tragedies makes us forget the stilted affectations of his heroes and heroines. The first opera composed by Cherubini in France is called *Démophon*, words by Marmontel. Its merits were appreciated by connoisseurs, but it was not a popular success. This, however, was achieved in the most brilliant manner by Cherubini's next opera, *Lodoiska* (1791), which opens the series of great dramatic works belonging to the composer's second period. The representative production of this period is *Médée*, already alluded to. The main characteristics of the composer's style have also been briefly touched upon. From a mere musical point of view a bold though always strictly logical sequence of harmonies, a rich vein of melodious developments, and great brilliancy and originality of instrumental effects ought to be added.

By the production of *Médée* (1797) the composer's reputation was firmly established. All Paris was in rapturous admiration of his genius, with one exception — Napoleon Bonaparte. The young victorious general aspired to musical amateurship, and loved to speak authoritatively on that as on most other subjects. But it was not in Cherubini's character to bow to any man, however great, in matters artistic. Cherubini's repeated remonstrances against Napoleon's exaggerated enthusiasm for Paesello, Zingarelli, and other ephemeral composers culminated in the blunt repartee, — "Citoyen-général, I perceive that you love only that music which does not prevent you from thinking of your politics." The emperor remembered the affront offered to the citizen-general, and the appointment of Imperial chapel-master was given to Lesueur, in spite of the Italian composer's superior merits. But Cherubini does not seem to have suffered much under this disappointment. The works replete with serenest joy owe their origin to the period alluded to — *Anacreon* (1803) and *Les Deux Journées* (1804). The last-mentioned work is Cherubini's piece of comic opera. In it we admire the grace and true *gaieté de cœur*, which have made the comic opera of France deservedly famous amongst civilized nations. The libretto of *Les Deux Journées*, although clever and piquant, does not offer many opportunities for musical expansion, the action, as is usual in French comic opera, being to a great extent carried on in spoken dialogue. But Cherubini has succeeded in delineating with a few graphic touches the import of his characters and situations. A peasant chorus in the third act, a Savoyard's song, and the couplets of Micheli the jovial water-carrier, are unsurpassable specimens of the *genre*, equal in melodious beauty and grace to anything that French composers have produced in these forms of art. Cherubini, indeed, ranks with the greatest masters of the French school, — with Gretry, Dalayrac, Auber, and Boieldieu, all of whom he infinitely surpasses as far as musical workmanship is concerned.

In 1805 Cherubini went to Vienna, in compliance with an invitation to compose an opera for the imperial theatre of that city. Here his chances of success were once more thwarted by his great antagonist Napoleon, who entered Vienna at the head of the victorious French

army, and for a time interrupted all artistic enterprise. The personal meeting of emperor and composer was again of anything but a friendly kind. Soon after the performance of his new work *Faniska* (1806) at Vienna, Cherubini returned to Paris, and for a long time kept an unbroken silence. His chief occupation was his lessons at the Conservatoire, besides which he filled up great part of the day by cutting the hearts and diamonds of ordinary playing cards into all kinds of fantastic figures and landscapes. The results of his extraordinary ingenuity, carefully framed, covered the walls of his study. An accidental circumstance at last roused him from this morbid indolence. He was staying at a country seat of the Prince de Chimay, where a new church was to be inaugurated. Timidly was an appeal made to him for a religious composition to be performed on the occasion, and in compliance with this request he wrote in a few weeks his great Mass in F. Thus at a time of life when most artists rest on their laurels he entered a new field of creative labor—that of sacred music. Of the works of Cherubini's third and perhaps his greatest period only the most important can be mentioned here. They are the *Missa Solemnis* in D, the coronation mass written for the consecration of Charles X., and the two requiems in C and D, the latter for male voices. Besides these he wrote numerous smaller compositions for the service of the Chapel Royal, most of which are still unpublished. The most striking feature of Cherubini's sacred compositions is their solemn grandeur of conception, combined with an unequalled mastership of artistic treatment.

The Restoration of the Bourbons drew Cherubini from his long seclusion. The royal family were eager to show their favor to the opponent of Napoleon Bonaparte. Cherubini was created composer and conductor to the Chapel Royal, and in 1821 obtained the permanent directorship of the Conservatoire. His days were prolonged beyond the ordinary age of men, and after having witnessed and partly celebrated numerous revolutions in his adopted country, the more than septuagenarian retained sufficient vigor of mind to write one of his most charming operas when Louis Philippe was king in France. It is called *Ali Baba*, and was first performed in 1833. To the list of his dramatic compositions ought also to be added another important opera, *Les Abencerrages*, written in 1813, but treated with undeserved neglect by the public. He also wrote several pieces of chamber music, amongst which six quartets for strings, and one quintet and six sonatas for the pianoforte may be mentioned. A great number of his compositions, moreover, remained in manuscript at his death, March 15, 1842.

CHERUSCI, a tribe of ancient Germany, whose country was bounded on the E. by the Elbe and on the W. by the Weser. In the time of Augustus the cruelty of Varus, who commanded the Roman army on their frontier, drove them into war, and they annihilated the legions sent against them. In the 4th century they had become members of the Frankish confederation.

CHESHIRE, a maritime county in the north-west of England, is bounded on the N. by the Mersey, which separates it from Lancashire, on the N.E. by Yorkshire, on the E. by Derbyshire and Staffordshire, on the S. by Shropshire and Denbighshire, on the W. by Flintshire, and on the N.W. by the Irish Sea. Its greatest length from east to west is about 48 miles, and its greatest breadth from south to north about 33 miles. It possesses an area of 705,493 statute acres, or 1102 square miles; and its population in 1889 was over 550,000 persons.

During the years 1865 and 1866 a mighty calamity swept over this county. The cattle plague, which had

in 1745 destroyed 30,000 head of cattle, appeared in the second week of October, 1865, on the southern border of the county. Spreading itself there, and breaking out almost simultaneously on the north-west, west, and east, it had by the 21st February, 1866, destroyed 36,823 head of stock. On that day an Act of Parliament was passed to authorize slaughter and to give compensation, and in consequence 35,675 cattle were killed. A loan was granted from the Treasury, on the security of the county rate, of £270,000 to pay the compensation for losses after the 22d February, which entails an annual charge on the county rates of £14,583, 14s. 10d. until the year 1896. Although by this terrible loss many individuals were ruined, and for the time great distress was caused, yet on the whole the agriculture of the district was benefited. Landlords discovered that stringent clauses in their leases might safely be modified; tenant-farmers became convinced that cheesemaking was not the whole duty of the agriculturist, and the possibility and even the necessity of new ways of farming, and of the introduction of sheep or feeding-stock, became apparent.

The principal towns are Chester, Birkenhead, Macclesfield, Stockport, Northwich, Crewe, and Congleton. At Stockport the manufacture of hats and cotton is carried on, and Macclesfield and Congleton are the seats of the silk manufacture. At Crewe are situated the great workshops of the London and Northwestern Railway, and round the station, where in 1841 there was a wooden box to take the tickets and one solitary farmhouse, there is now a crowded population of nearly 30,000 inhabitants. The trade of Northwich and Winsford is the manufacture of salt, by the evaporation of the water from the brine. During the year 1889 it is calculated that 1,500,000 tons of salt were produced, of which 1,000,000 were for export, 350,000 for chemical works, 100,000 for agricultural purposes, and 50,000 for domestic use. In that year there were in Cheshire 1261 salt-pans, employing over 3000 men. About 150 men are engaged in rock-salt mining, and the carriage of salt on the Mersey and Weaver employs at least 1000 men and 500 boys. Steamers are now largely employed in the inland navigation, between thirty and forty being engaged in the carrying trade.

Besides being in part a manufacturing and in part a purely agricultural county, Cheshire, more perhaps than any place except the districts round the metropolis, is the home of business men. The manufacturers of Manchester, the merchants of Liverpool, the gentlemen employed in the pottery trade, all have their villas here.

Two Roman roads traversed Cheshire, the north-west branch of Watling Street, running from Chester through Northwich to Stratford, where it crossed the Mersey into Lancashire, and the Via Devana which entered from Salop and extended to Chester. Many handsome and interesting mansions exist in the county, some of them being admirable specimens of Elizabethan architecture. Among the most noteworthy may be mentioned Bramall Hall near Stockport, Brereton Hall near Sandbach, Crewe Hall, the seat of Lord Crewe, and Eaton Hall, the seat of the duke of Westminster.

CHESNE, ANDRÉ DU. See DUCHESNE.

CHESNEY, CHARLES CORNWALLIS, brevet-colonel in the corps of Royal Engineers, born 29th September, 1826, was the third son of Charles Cornwallis Chesney, captain on the retired list of the Bengal Artillery. Educated at Tiverton grammar school and Mount Radford school, Exeter, and afterwards at the Royal Military Academy, Woolwich, he obtained his first commission as second-lieutenant of engineers in 1845, passing out of the academy with distinction at the head of his term.

Chesney's first published work was an account of the civil war in Virginia, which went through several edi-

tions; and although written in the heat of the struggle, and on the partial information then available, it may still be read with profit. But the work which attained the greatest reputation was his *Waterloo Lectures*, prepared from the notes of lectures orally delivered at the Staff College. Up to this time the English literature on the Waterloo campaign, although voluminous, was made up of personal reminiscences of actors in the great scene, or of formal records such as Siborne's accurate but tedious narrative, useful materials for history rather than history itself: the French accounts have mainly taken the form of fiction, the so-called history of Lamartine being as much a work of fancy as the romance of Victor Hugo, while the professedly sober pages of Thiers are not much more to be relied on. In Chesney's lucid and vigorous account of the momentous struggle, while it illustrates both the strategy and tactics which culminated in the final catastrophe, the mistakes committed by Napoleon are laid bare, and for the first time an English writer is found to point out that the dispositions of the great duke were not wholly faultless. Yet such criticism is in truth the sincerest praise, since to those who, knowing anything of war, know that even the highest combinations are at best a groping in partial darkness, the capacity of a great leader will be more perfectly appreciated by a right estimate of his mistakes than by a blind attribution of infallibility. And in the *Waterloo Lectures* the Prussians are for the first time credited by an English pen with their proper share of the victory. On this point there had hitherto been an English as well as a Napoleonic legend. The *Waterloo Lectures* attracted much attention abroad as well as at home; on the appearance of the French edition, published at Brussels, another account of the campaign, written at the instance of the emperor Napoleon III., and quite in the spirit of the Napoleonic legend, was published immediately afterwards in Paris in a cover to correspond exactly with the Brussels edition, and with the obvious intention that it should circulate in place of the other,—a delicate test of the appreciation of the original on the part of the French Government.

In 1868 Charles Chesney, who on promotion to field rank had returned to regimental duty, was appointed a member of the Royal Commission on Military Education which sat during that and the following year, under the presidency first of Earl de Grey and afterwards of Lord Dufferin, and to whose recommendations are due the improved organization of the military colleges, and the development of military education throughout the principal military stations of the British army. In 1871, immediately after the conclusion of the Franco-German war, he was sent on a special mission to France and Germany, and furnished to the Government a series of valuable reports on the different siege operations which had been carried out during the war, including especially the two sieges of Paris, and on the condition of the fortresses and military condition and organization of the two powers. These reports were published in a large volume, only a few copies of which have been issued confidentially.

Never seeking regimental or staff preferment, Colonel Chesney never obtained any, but he held at the time of his death a quite unique position in the army, altogether apart from and above his actual place in it. Consulted by officers of all grades on professional matters, his ready and vigorous pen was often placed at the service of the Government to illustrate and defend in the press the different measures of reform lately adopted in military organization; while probably few have done more to raise the intellectual standard of the English army and its estimation in that respect among the more intelligent spirits of foreign armies.

CHIESS, simply defined, is an intellectual pastime. It recreates not so much by way of amusement properly so termed, as by taking possession of the mental faculties and diverting them from their accustomed grooves. The cerebral organ, after being much occupied in business, or greatly worried by cares, or in any way beset by painful reflections, finds in the absorbing and abstracting properties of chess that temporary relief which lighter pastimes will not always afford. The reason of this is not far to seek. Cares are caused by looking forward to or apprehending things to come, and, as such, are neutralized by that foresight which the conduct of a game of chess demands. Again, mental perturbations, however much varied, can but be the employment of the imagining and reasoning faculties in the digestion of the particular cause of annoyance or pain; but these same faculties are required, and their exclusive exercise demanded, in providing for the emergencies of the intellectual combat, and in solving the ever-varying problems that arise in the course thereof. It is very commonly supposed that chess is a very difficult game, whether to acquire or practice. This, however, is a mistake. The moves may be learned in half an hour, and a week's practice will evoke a sufficient amount of skill to afford pleasure both to the learner and his tutor. The intelligent novice will soon be convinced that an ignorant manipulation of the pieces does not conduce to success, and he will seek for instruction in the right manner of opening the game; the various débuts are after all simple, and he will find no difficulty in acquiring them one after the other. Six months will suffice for this purpose if his understanding be not enslaved by obstinacy, indolence, or self-esteem, and the rest goes with his natural capacity. A merely average intelligence is sufficient for a very fair amount of proficiency and strength; while intellect not much above the common mean will suffice (assuming here natural aptitude) to lead right up to the second class of players, viz., those to whom the masters of the game can only concede the small odds of "pawn and move." Those wishing to improve will find it very beneficial to play upon even terms with players stronger than themselves; for a persistence in taking odds, besides having a discouraging and debilitating effect upon the weaker player, takes the game out of its proper grooves, and tends to produce positions not naturally arising in the ordinary course of the game as developed from the recognized openings. In fact, the reception of odds incapacitates a player from acquiring an insight into the principles of the science of chess, and from comprehending the latent meanings and conceptions upon which combinations and a proper plan of warfare are founded; while, upon the contrary, playing upon even terms throws the combatant at once upon his own judgment, and by causing him to study his opponent's play, leads necessarily to a material improvement in his own style.

The origin of the game of chess is lost in obscurity, a fact which has rather invited than repelled learned speculations on the subject. The invention of the pastime has been variously ascribed to the Greeks, Romans, Babylonians, Scythians, Egyptians, Jews, Persians, Chinese, Hindus, Arabians, Araucanians, Castilians, Irish, and Welsh. Not content with upholding the claims of nations or races, some have endeavored to fix upon particular individuals as the originators of the game; and amongst others, the following have found supporters:—Japhet, Shem, King Solomon, the wife of Ravan king of Ceylon, the philosopher Xerxes, the Grecian prince Palamedes, Hermes, Aristotle, the brothers Lydo and Tyrrhene, Semiramis, Xenobia, Atalus who died about 200 B.C., the mandarin Hansing, the Brahman Sissa, and Shatrenscha, stated to be a cele-

brated Persian astronomer. Many of these ascriptions are of course fabulous, others rest upon little authority, and some of them proceed from easily traceable errors.

Altogether, we find the best authorities agreeing that chess existed in India before it is known to have been played anywhere else, — a fact which naturally leads them to fix upon that country as its probable birthplace. As to how long chess has really existed, unless we choose to rely upon evident myths and old fables, we shall find no ground whatever for attributing to it the great antiquity that some have maintained. Our earliest authority is Masuda, an Arabic author who wrote about 950 A.D. According to him, chess had existed long before his time; but the spirit of historic criticism will not permit of our unreservedly accepting his testimony in that regard. Say that he may speak not only for his own generation but for a couple of centuries before, and that will give an existence to chess of over a thousand years, a respectable period of time enough, and one to be satisfied with until a greater duration be proved.

The dimness which shrouds from view the origin of chess naturally obscures also its early history. All kinds of fables and legends lie in the way of the inquirer, and obstruct his progress, so that until a comparatively recent date a firm historical foundation is not to be found. Crossing from India into Persia it became known in the latter country by the name of shatranj. But how and when the game was introduced into Persia we have no means of knowing. True, the Persian poet Firdusi, in his historical poem, the *Shahnama*, gives an account of the introduction of shatranj into Persia in the reign of Naushirawan (Chosroes), to whom came ambassadors from the sovereign of Hind, *i.e.*, India, with a chess-board and men, asking him to solve if he could the secrets of the game, and otherwise to pay tribute. Naushirawan was the contemporary of Justinian, and reigned in the 6th century of our era. Professor Forbes seems to think that this poem may be looked upon as substantially an authentic history and credited as such. This appears, however, to be somewhat dangerous, especially as Firdusi lived some 450 years after the supposed event took place. Other Persian and Arabian writers state that shatranj came into Persia from India, and there appears, as we have seen, such a consensus of opinion as may be considered to settle that part of the question. We have, then, the game passing from the Hindus to the Persians, thence to the Arabians after they took possession of Persia in the 7th century, and from whom directly or indirectly it came to various parts of Europe, at a time which cannot be definitely fixed upon, but which was either in or before the 11th century. That the source of the European game is Arabic is clearly enough deducible, not merely from the words "check" and "mate," which are evidently from *Shāh māt*, but also from the names of some of the pieces, to be noticed further on. There are various chess legends having reference to the 7th and 8th centuries, but these may be passed by as presenting no appearance of historical verity; and equally unworthy of credence appear the many Oriental and Occidental romances which revolve around those two great central figures, Harun al Rashid and Charlemagne. There is no proof that either of them knew anything of chess, or, so far as the latter is concerned, that it had been introduced into Europe in his time. True, there is an account given in Gustavus Selenus, taken from various old chronicles, as to the son of Prince Okar or Otkar of Bavaria having been killed by a blow on the temple struck by a son of Pepin after a game of chess; and there is another well-known tradition as to the magnificent chess-board and set of men said to have been sent

over as a present by the Empress Irene to Charlemagne. But both tales are not less mythical than the romance which relates how the great Frankish monarch lost his kingdom over a game of chess to Guerin de Montglave; for Van der Linde shows that there was no Bavarian prince of the name of Okar or Otkar at the period alluded to, and in an equally relentless manner the sceptical Dutch writer breaks down the tradition about Irene's chessmen. With respect to Harun al Rashid, among the various stories told which connect him with chess, there is one that at first sight may seem entitled to some degree of credit. In the annals of the Moslems by Abulfeda, there is given a copy of a letter stated to be "From Nicephorus, emperor of the Romans, to Harun, sovereign of the Arabs," which (using Professor Forbes's translation) after the usual compliments, runs thus:—"The empress (Irene) into whose place I have succeeded, looked upon you as a *Rukh* and herself as a mere *Pawn*, therefore she submitted to pay you a tribute more than the double of which she ought to have exacted from you. All this has been owing to female weakness and timidity. Now, however, I insist that you, immediately on reading this letter, repay to me all the sums of money you ever received from her. If you hesitate, the sword shall settle our accounts." Harun's reply, written on the back of the Byzantine emperor's letter, was terse and to the point. It ran thus:—"In the name of God the merciful and gracious. From Harun, the commander of the faithful, to the Roman dog Nicephorus. I have read thine epistle, thou son of an infidel mother; my answer to it thou shalt *see*, not *hear*." Harun was as good as his word, for he marched immediately as far as Heraclea, devastating the Roman territories with fire and sword, and soon compelled Nicephorus to sue for peace. Now the points which give authority to this narrative and the alleged correspondence are that the relations which they assume between Irene and Nicephorus on the one hand and the warlike caliph on the other are confirmed by the history of those times, while, also, the straightforward brevity of Harun's reply commends itself as what one might expect from his soldier-like character. Still, the fact must be remembered, that Abulfeda lived about five centuries after the time to which he refers. Perhaps we may assume it to be not improbable that the correspondence is genuine; but the words "a *ruk*" and "a *pawn*" may have been substituted for other terms of comparison originally made use of.

As to how chess was introduced into Western and Central Europe nothing is really known. The Spaniards very likely received it from their Moslem conquerors, the Italians not improbably from the Byzantines, and in either case it would pass northwards to France, going on thence to Scandinavia and England. Some say that chess was introduced into Europe at the time of the Crusades, the theory being that the Christian warriors learned to play it at Constantinople. This supposition is negatived by a curious epistle of Cardinal Damianus, bishop of Ostia, to Pope Alexander II. written about 1061 A.D., which, assuming its authenticity, shows that chess was known in Italy before the date of the first crusade. The cardinal, it seems, had imposed a penance upon a bishop whom he had found diverting himself at chess. Among those who have taken an unfavorable view of the game may be mentioned John Huss, who, when in prison, deplored his having played at chess, whereby he had lost time and risked being subject to violent passions. Among authentic records of the game may be quoted the *Alexiad* of the Princess Anna Comnena, in which she relates how her father, the Emperor Alexius, used to divert his mind from the cares of state by playing at chess with his relatives. This emperor

died in 1118. Concerning chess in England there is the usual intermingling of the legendary and the possibly true. Snorre Sturleson relates that as Canute was playing chess with Earl Ulfr, a quarrel arose, which resulted in the latter upsetting the board with the further consequence of his being murdered in church a few days afterwards by Canute's orders. Altogether, strewed about the chronicles and writings of the Middle Ages are many allusions to the game, but the subject cannot be further elucidated here; though a word or two about the pieces and the changes they have undergone may be worth adding.

The king seems always to have had the same move as at present; but it is said he could formerly be captured. There seems to be no recorded proof, however, of his ever having been subject to this liability in the real shatranj. His castling privilege is a European invention; in lieu thereof he formerly leaped two and even three squares. Castling dates no further than the first half of the 16th century. The queen has suffered curious changes in name, sex, and power. In shatranj she was called *farz* or *firz*, signifying a "counsellor," "minister," or "general." This was Latinized into *farzia* or *fercia*. The French slightly altered the latter form into *fierce*, *fierge*, and as some say, *vierge*, which, if true, might explain her becoming a female. Another and much more probable account has it that whereas a pawn on reaching an eighth square became a *farzin*, and not formerly any other piece, which promotion was of the same kind as at draughts (in French *dames*), so she became a dame or queen as in the latter game, and thence *dama*, *donna*, &c. There are old Latin manuscripts in which the terms *ferzia* and *regina* are used indifferently. The queen formerly moved only one square diagonally, and was consequently the weakest piece on the board. The immense power she now possesses seems to have been conferred upon her so late as about the middle of the 15th century, and there can be little doubt that her investiture therewith arose analogically through the similiarity of the powers of promotion possessed alike by the pawns and the common men in draughts. It will be noticed that under the old system the queens could never meet each other, for they operated on diagonals of different colors. The bishop's scope of action was also very limited formerly; he could only move two squares diagonally, and had no power over the intermediate squares, which he could leap over whether they were occupied or not. One result of the peculiar motion of the bishops was that they could never encounter each other even when running on diagonals of the same color. This limitation of their powers prevailed in Europe until the 15th century. This piece, according to Forbes, was called among the Persians, *pil*, an elephant, but the Arabs, not having the letter *p* in their alphabet, wrote it *fil*, or with their definite article *al-fil*, whence *alphilus*, *alfinus*, *alfiere*, the latter being the word used by the Italians; while the French no doubt get their *fol* and *fou* from the same source. The pawns formerly could move only one square at starting; their powers in this respect were increased about the early part of the 16th century. It was customary for them on arriving at an eighth square to be exchanged only for a *farzin* (queen), and not any other piece; therefore, the plurality of queens is not, as some suppose, a new doctrine. The rooks and knights appear to have always had the same powers as at present. As to the chess boards they were formerly uncolored, and it is not until the 13th century that we hear of checkered boards being used in Europe.

The remarkable, not to say revolutionary, changes which, commencing about the middle of the 15th century, transformed the mediæval shatranj into our modern chess, took place most probably first in France, and thence made

their way into Spain, where the new game was called *Axedrez de la Dama*, being also adopted by the Italians under the name of chess *alla rabiosa*. This revolution of the ancient method of play is contemporaneous with that tide of discovery which set in shortly after the conquest of Constantinople, and culminated in the introduction of topography, the discovery of America, the enunciation of the Copernican theory, &c. The time of the first important writer on modern chess, the Spaniard Ruy Lopez de Segura (1561), is also the period when the latest improvement, castling, was introduced, for his book, though treating of it as already in use, also gives the old mode of play, which consisted of a solitary leap of the king. Shortly afterwards, the old shatranj disappears altogether, the struggle for existence resulting as usual in the victory of the stronger. Of Lopez it may be said that he was the first who merits the name of chess analyst, as he gives reasons for his different variations in the openings, and for holding different opinions from his predecessor Damiano. At this time flourished the flower of the Spanish and Italian schools of chess. In the years 1562-1575, both Italian masters visited Spain, and defeated their Spanish antagonists, so that this period is rightly considered as that when national chess tournaments first took place. The following century yielded a great number of chess writers, but scarcely any great players; and, in fact, during the whole 17th century, we find but one worthy to be mentioned, viz., the very ingenious Giacchino Greco (il Calabrese), whose recorded games abound in the most beautiful, but often not very sound, combinations. The middle of the 18th century inaugurates a new era in chess, for now the compilations and reprints of very different writers were abandoned by the student and relegated to the collections of bibliophiles. Instead we find real chess-players and painstaking analysts. The leading man of this time was François André Danican Philidor. He was born the 7th of September, 1726, at Dreux, near Paris, played chess very early, and was trained by the M. de Kemur Sir de Legal, the then star of the Café de la Régence, which has been the centre of French chess ever since the commencement of the 18th century. In 1747 Philidor visited England, and defeated the Arabian player Philip Stamma by 8 games to 1 and 1 draw. In 1749 he published in London his *Analyse des Echecs*, a book which went through more editions and was more translated than a score of other works upon the game. In fact it was the chess Koran. During more than half a century Philidor travelled much in England, Holland, and Germany; but unfortunately he never went to Italy, the only country where he could have found opponents of first-rate skill. Italy was represented in Philidor's time by a trio renowned in the history of chess as forming the Modenese school — Ercole del Rio, Lolli, and Ponziani. The style of these experts was less sound than that of Philidor, but certainly a much finer and, in principle, a better one. It may be added that as an analyst the Frenchman was in many points refuted by Ercole del Rio, who wrote under the *nom de plume* of the Anonymous Modenese. Blindfold chess play, already exhibited in the 11th century by Arabian and Persian experts, was taken up afresh by Philidor, who played on many occasions three games simultaneously without sight of board or men. These exhibitions were given in London, where he visited every season from 1784 as the guest of the Chess Club in St. James Street; and he died in that city on the 24th of August, 1795. As eminent players of this period must be mentioned Count Ph. J. van Zuylen van Nyevelt (1743-1826), and the German J. Allgaier (1763-1823), after whom is called a well-known brilliant variation of the King's Gambit. Philidor's mantle was taken up by

Alexander Louis Honoré Lebreton Deschappelles (1780-1847), who possessed undoubtedly a great genius for the game, and was its champion for many years, notwithstanding that he lacked all knowledge of the theory. The only player who is known to have fought Deschappelles not unsuccessfully on even terms is the veteran John Cochrane. The Frenchman generally declined to play except at odds, and he was ever ready to handicap himself liberally. He lost, however, a match (1821) to W. Lewis, to whom he conceded the pawn and move, the Englishman winning 1 and drawing the 2 others. Deschappelles's greatest pupil, and the strongest player France ever possessed, was Louis Charles de Labourdonnais—born in 1797—who was the leader of the French school from 1821 until his death in December 1840. His most memorable achievement was his contest with the English champion, Alexander Macdonnell, in a series of matches which resulted in the French player winning in the proportion of 3 to 2 of all the games played.

The English school of chess commenced about the beginning of the present century, and Sarratt was its first leader. He flourished from 1808 to 1821, and was followed by his great pupil W. Lewis, who, however, exhibited his skill in practical play for a short time only, and will be principally remembered for his writings, which stamp him as a great and original chess analyst. His literary career belongs to the period from 1818 to 1848, and he died in 1869. A. Macdonnell has been already mentioned; he was born in 1798 and died in 1835. He was a very ingenious and brilliant player, but lacked soundness. To the same period belongs also Captain Evans, the inventor of the celebrated Evans Gambit (1828), who died at a very advanced age in 1873; Perigal, who participated in the correspondence matches against Edinburgh and Paris; George Walker, for thirty years chess editor of *Bell's Life in London*, and John Cochrane, who has crossed swords with every strong player from Deschappelles downwards. In the same period Germany possessed but one player who was above the mediocrities of the time,—J. Mendheim, whose name is connected with Berlin chess, in which city he resided from 1810 to 1836. The fifth decennium of the 19th century is marked by the fact that the chess sceptre departed from the French school, and was grasped by the English. After Labourdonnais's death Fournié de Saint-Amant became the leading player in France; as such he visited England in the early part of 1843, and contended successfully against the best English players, including Howard Staunton; but the latter soon took his revenge, for in November and December, 1843, the great match between Staunton and Saint-Amant took place in Paris, the English champion winning by 11 games to 6 with 4 draws. During the succeeding eight years Staunton maintained his reputation by defeating in matches upon even terms Popert, Horwitz, and Harrwitz, besides a number of strong amateurs to whom he conceded large odds. He had also two other matches with Harrwitz, one at pawn and two moves, and the other at pawn and move—the former being won by Staunton, and the latter lost by him. Staunton's services in the cause of chess literature are adverted to below. That they were very great, and that the game in England owes much of its present popularity to him is not to be questioned, as also that for thirty years he occupied a position in the English chess world possessed by none of his contemporaries. Staunton was defeated by Anderssen at the London tournament in 1851, and from that time his match-playing career concluded. He died suddenly on the 22d of June, 1874, at the age of sixty-four. Among the contemporaries of Staunton, mention should certainly not

be omitted of Henry Thomas Buckle, author of the *History of Civilization*. His remarkable powers as a chess-player were principally exhibited in games played only for recreation at Simpson's Chess divan, wherein he was successful over Kieseritzki, and used to concede odds to strong players, such as Barnes, Bird, &c. He beat Anderssen in 1851—when the Breslau player was at the height of his strength—in a series of 15 well-contested games played between them, by a majority of one game, and he also about the same time defeated Löwenthal in a match.

In the ten years 1830-1840 a new school arose in Berlin, the seven leaders of which have been called the Pleiades. These were Bledow (1795-1846), Bilguer (1815-1840), Hanstein (1810-1850), Mayet (1810-1868), Schorn (1802-1850), B. Horwitz, born in 1809 and now living in London, and last, but not least, the eminent player and chess author, Von Heydebrandt und der Lasa, for many years the imperial German ambassador at Copenhagen. As belonging to the same period must be mentioned the three Hungarian players,—Grimm, who died in Turkish Asia, whither he had fled after the insurrection of 1848; Szen, known by his successful combats with Labourdonnais (who conceded the Pesth player pawn and two moves, but lost 11 games out of 12), his competition in the 1851 tourney, as also his general play with the strongest adepts of his time; and J. Löwenthal, lately deceased, whose career, however, belongs more naturally to the period of later British chess. Among other proofs of the skill of these Hungarians is the correspondence match in 1843-45 between Pesth and Paris, won by the former.

The first modern international chess tournament, held at London in 1851, marks the commencement of the present epoch, and was the forerunner of various similar contests between strong players of different nationalities. This tourney brought forward a player, who, so far as beauty of combination goes, stands even to the present moment without a rival, viz., A. Anderssen, born in Breslau the 6th of July, 1818. Before his appearance in England he had defeated all his German antagonists, and at the above-mentioned tournament he took the first prize, having successively beaten L. Kieseritzki, Szen, Staunton, and Mr. Wyvill, M.P. Anderssen played the same year in the tournament of the London Club, and again took first honors. In 1857 he competed in the Manchester tourney, but lost in the last round to Löwenthal, who consequently won the first prize, Anderssen having the second. In December, 1858, Anderssen was beaten by Morphy in a match played at Paris, the score being 7 games to 2 and 2 drawn. In 1860 the indefatigable Breslau player again visited Paris, and played successfully against J. Kolisch; and he also defeated the latter in 1861 in a set match played at London by 4 games to 3. In the London tournament of 1862, Anderssen took the first prize; but in 1866 he lost a match to Steinitz, the winner's score being 8 to 6. In 1869 Anderssen came out first in the North German and Rhenish tournaments, and again in 1870 at the Baden-Baden congress; but in the spring of 1871 he lost a match to Zukertort, score 5 to 2, and he took but the third prize at the Vienna congress of 1873. Altogether he has shown himself the most soldier-like of chess players, ever ready for the fight, and never caring to rest upon his reputation. Among those who may be reckoned as more or less owing their training to him are the following eminent players:—D. Harrwitz, J. Dufresne, Max Lange, B. Suhle, P. Hirschfeld, G. R. Neumann, E. Schallopp, S. Mieses, J. H. Zukertort, and many others.

Paul Morphy, who beat Anderssen by such a decisive majority of games, is considered by many competent

judges, and probably with truth, to have been the strongest chess player that ever lived. His career was short but brilliant. Born in New Orleans on the 22d of June, 1837, he was taught chess by his father when only ten years of age, and in two years' time became a strong player, able to contend with success against his uncle, Mr. Ernest Morphy, and Mr. Eugene Rousseau, both high-class experts. When not quite thirteen he played three games with Löwenthal, and won two of them, the other being drawn. He was twenty years of age when he competed in the New York congress of 1857, where he won the first prize, having defeated C. H. Stanley, L. Paulsen, and other strong American amateurs. In 1858 he visited Europe, and there met with a series of triumphs. He arrived first in England, and there defeated by large majorities Boden, Medley, Mongredien, Owen, Bird, and others. He also, in a match played in London, beat Löwenthal by 9 games to 3 and 2 drawn. In September of the same year (1858) he played a match at Paris with Harrwitz, whom he defeated by 5 to 2 and 1 drawn; and later on he obtained a victory over Anderssen as above stated. During his stay in Europe he on two or three occasions played without sight of board or men and simultaneously against eight strong players; each time with great success. He returned to America in May, 1859, and here his chess career virtually finishes. He continued to play in his own circle, but with decreasing interest in the game, until 1866, when he totally abandoned its practice and never played after.

Wilhelm Steinitz, born at Prague in 1836, and for the last fourteen years resident in London, took the sixth prize at the London congress of 1862. Immediately afterwards he defeated Blackburne in a match by 7 to 1 and 2 draws. In 1866 he beat Anderssen in a match by 8 games to 6; and in 1867 he took the third prize at the Paris tournament. In 1868 he carried off the first prize in the British Chess Association handicap, in 1870 the second prize of the Baden-Baden tournament, and in 1872 the first prize of the London grand tourney. In the last-mentioned year he defeated Zukertort in a match by 7 games to 1 and 4 draws.

CHESS, a grass or weed found in wheat fields and ignorantly believed to be wheat which has deteriorated. The converse proposition that chess could be developed into wheat is equally baseless.

CHEST, or THORAX, in anatomy, is that part of the body that lies beneath the neck and above the abdomen, constituting the uppermost of the two divisions of the trunk, or that which contains the heart and lungs, and is bounded externally by the ribs. The contents of the chest are the heart, the great arteries and veins, the lungs, the trachea or wind-pipe, the bronchi or branches of the trachea, leading to the lungs, the œsophagus or gullet, and the thoracic duct, or general terminus of the lymphatic system of vessels, by which the chyle and lymph are discharged into the blood.

CHESTER, an ancient city of England in West Cheshire, the capital of the county, situated on the river Dee, 20 miles from the open sea, 16 miles S. E. of Liverpool, and 179 miles N. W. of London. Pop. 36,000.

Chester is the only city in England that still possesses its walls perfect in their entire circuit of two miles. The gateways have all been rebuilt within the last hundred years,—the north and east gates on the site of the Roman gates. The Grosvenor Bridge, a single span of stone 200 feet in length, the largest, save one over the Danube, it is believed, in Europe, carries the road to Wrexham and Shrewsbury over the Dee on the southwest, while the old bridge of seven arches is interesting on account of its antiquity and picturesque appearance.

The history of Chester reaches back to very early

times. Higden ascribes the foundation of the town to a very remote period. It is the *Deva* of the Roman Itineraries, and from its position at the head of the then most important estuary on this part of the coast, and at a point where several Roman roads converged, it must soon have risen in prosperity and importance. The dignity of a Roman *colonia* has been claimed for it by some writers, but there is no certain evidence on which such a claim can be grounded. The pick and spade, however, have revealed numerous proofs that it was "no mean city." Among numerous altars from time to time exhumed is one of rare occurrence with a Greek inscription, and dedicated by Hermogenes, a physician. Of the latest discoveries the most remarkable was made in pulling down the Feathers Hotel on the east side of Bridge Street, when the remains of a fine basilica were brought to light.

CHESTER, the county seat of Randolph county, Ill., is situated on the Mississippi river at the mouth of the Kaskaskia, forty-five miles south of Belleville. It has good railroad facilities, and has manufactures of flour, plows, and machinery. Chester is the seat of the Southern Illinois Penitentiary. Population (1890) 4,400.

CHESTER, a city in the county of Delaware, Pennsylvania, on the right bank of the Delaware river, ten miles southwest of Philadelphia by the railway to Wilmington. It has five or six churches, two high schools, and a national hall, and carries on the manufacture of cotton and woolen goods, machinery, and carriages. Chester is notable for its ship-building yards, from which some very large iron steamships have been launched. It contains two national and two other banks, twelve churches and several schools, and is the seat of the Pennsylvania Military Academy. Population (1890), 20,226.

CHESTERFIELD, a municipal borough and market-town of England, in East Derbyshire, 12 miles south of Sheffield by the Midland Railway. It is situated on the Rother and Hipper, and is the terminus of a canal extending a distance of 46 miles to the Trent at Stockwith. Chesterfield was a Roman station on the road from Derby to York, and its name is partly of Roman origin.

CHESTERFIELD, PHILIP DORMER STANHOPE, FOURTH EARL OF, the son of Philip Stanhope, the third earl, and Elizabeth Savile, daughter of the marquis of Halifax, was born in London. His education, commenced under a private tutor, was continued (1712) at Trinity Hall, Cambridge; here he seems to have read hard, and to have acquired a considerable knowledge of ancient and modern languages. The great orators of all times were a special object of study with him, and he describes his boyish pedantry pleasantly enough, but by no means without a touch of self-satisfaction in the memory. His university training was supplemented (1714) by a Continental tour, untrammelled by a governor; at The Hague his ambition for the applause awarded to adventure made a gamester of him, and at Paris he began, from the same motive, that worship of the conventional Venus, the serious inculcation of which has earned for him the largest and most unenviable part of his reputation.

The death of Anne and the accession of George I. opened up a career for him and brought him back to England. His relative, James Stanhope, the king's favorite minister, procured for him the place of gentleman of the bedchamber to the Prince of Wales. In 1715 he entered the House of Commons as member for St. Germans, and when the impeachment of James, duke of Ormond, came before the House, he used the occasion to put to proof his old rhetorical studies. His maiden speech was youthfully fluent and dogmatic;

but on its conclusion the orator was reminded, with many compliments, by an honorable member, that he wanted six weeks of his majority, and consequently that he was amenable to a heavy fine for speaking in the House. Lord Stanhope quitted the Commons with a low bow, and started for the Continent. From Paris he rendered the Government important service by gathering and transmitting information respecting the Jacobite plot; and in 1716 he returned to England, resumed his seat, and took frequent part in the debates.

In 1726 his father died, and Lord Stanhope became earl of Chesterfield. He took his seat in the Upper House, and his oratory, never effective in the Commons by reason of its want of force and excess of finish, at once became a power. In 1727, on the accession of George II., Chesterfield was sent to The Hague as ambassador. In this place his tact and temper, his dexterity and discrimination, enabled him to do good service, and he was rewarded with Walpole's friendship, a Garter, and the place of Lord High Steward. In 1732 there was born to him, by a certain Madam du Bouchet, the son, Philip Stanhope, for whose advice and instruction were afterwards written the famous *Letters*. In the same year, being somewhat broken in health and fortune by his sojourn abroad, he resigned his embassy and returned to England. A few months' rest enabled him to resume his seat in the Lords, of which he was one of the acknowledged leaders. He supported the ministry, but his allegiance was not the blind fealty Walpole exacted of his followers. The Excise Bill, the great premier's favorite measure, was vehemently opposed by him in the Lords, and by his three brothers in the Commons. Walpole bent before the storm, and abandoned the measure; but Chesterfield was summarily dismissed from his Stewardship. For the next two years he led the opposition in the Upper House, leaving no stone unturned to effect the downfall of the man who had wronged him. In 1742 Walpole fell, and Carteret reigned in his stead. The new ministry, however, had not Chesterfield either in its ranks or among its supporters. He remained in opposition, distinguishing himself by the courtly bitterness of his attacks on George II., who learned to hate him violently. In 1744 the king was compelled to abandon Carteret, and the coalition or "Broad Bottom" party, led by Chesterfield and Pitt, came into office. In the troublous state of European politics the earl's conduct and experience were more useful abroad than at home, and he was sent to The Hague as ambassador a second time. The success of his mission was complete; and on his return a few weeks afterwards he received the lord-lieutenancy of Ireland, a place he had long coveted.

Short as it was, Chesterfield's Irish administration was of great service to his country, and is unquestionably that part of his political life which does him most honor. In 1746, however, he had to exchange the lord-lieutenancy for the place of Secretary of State. With a curious respect for those theories his familiarity with the secret social history of France had caused him to entertain, he hoped and attempted to retain a hold over the king through the influence of Lady Yarmouth, though the futility of such means had already been demonstrated to him by his relations with Queen Caroline's "*ma bonne Howard*." The influence of Newcastle and Sandwich, however, was too strong for him; he was thwarted and over-reached; and in 1748 he resigned the seals, and returned to cards and his books with the admirable composure which was one of his most striking characteristics.

The dukedom offered him by George II., whose ill-will his fine tact had overcome, was refused. He con-

tinued for some years to attend the Upper House, and to take part in its proceedings. In 1751, seconded by Lord Macclesfield, President of the Royal Society, and Bradley, the eminent mathematician, he distinguished himself greatly in the debates on the calendar, and succeeded in making the new style a fact. Deafness, however, was gradually affecting him, and he withdrew little by little from society and the practice of politics. In 1754 occurred the famous dispute with Johnson over the dedication to the *English Dictionary*. This quarrel (to which are owing the doctor's noble letter and some half dozen of his roughest *mots*, and the earl's clever portrait of the "intelligent Hottentot"), with the neglect it assumed on Chesterfield's part, has been fatal to his reputation as a man of heart. During the twenty years of life that followed this episode, Chesterfield wrote and read a great deal, but went little into society. In 1768 died Philip Stanhope, the child of so many hopes; and the earl, who had no children by his wife, Melusina von Schulemberg, illegitimate daughter of George I., whom he married in 1733, adopted his godson the heir to the title and estates. His famous jest (which even Johnson allowed to have merit),—"Tyrawley and I have been dead these two years, but we don't choose to have it known"—is the best description possible of his humor and condition during the latter part of this period of decline. To the deafness was added blindness, but his memory and his fine manners only left him with life; his last words ("Give Dayrolles a chair") prove that he had neither forgotten his friend nor the way to receive him. He died on the 24th of March, 1773.

CHESTERFIELD INLET, a long and narrow gulf, penetrating to the westward from the northwest of Hudson's Bay. Its extreme dimensions are 250 miles in length by 25 in breadth, and the latitude and longitude of its mouth are 63° 30' N., and 90° 40' W.

CHESTER-LE-STREET, a market-town of England in the county of Durham, near the River Wear, six miles north of Durham, on the North-Eastern Railway. Population, 3,000.

CHESTNUT. The Spanish or Sweet Chestnut, *Castanea vesca* (natural order, *Corylaceæ*), is a stately and magnificent tree, native of the countries bordering on the Mediterranean, but also ripening its fruit in sheltered situations as far north as Scotland. It lives very long, attains a large size, spreading its branches widely, and it has large lanceolate serrate leaves, long pendulous male catkins, with fewer inconspicuous female flowers, the fruit being an echinate capsule, containing from two to five nuts, of which seldom more than three are mature. The largest known chestnut tree is the famous *Castagno di cento cavalli*, or the chestnut of a hundred horses, on the slopes of Mount Etna, a tree which when measured nearly a hundred years ago, by Count Borch, was found to have a circumference of 190 feet. By many observers it has been maintained that this colossal tree consisted of a fusion of several trunks; but many specimens not much smaller exist in the neighborhood, and by digging around it has been found that all the trunks end in one root. The wood of the sweet chestnut is valued by cabinet-makers and coopers; and among European timbers it was at one time esteemed second to the oak, which it so closely resembles that in old wood-work the two timbers are very difficult to distinguish. Chestnuts (the fruit of the tree) are extensively imported into Great Britain, and roasted are much eaten as a delicacy. In a raw state they have a sweet taste, but are difficult of digestion. The trees are very abundant in the south of Europe, and chestnuts figure largely in the food resources of the poor in Spain, Italy, Switzerland, and Germany. In

Italy the kernels are ground into meal, and used for thickening soups, and even for bread-making. In North America, the fruits of an allied species, *C. americana*, are similarly eaten.

The Horse Chestnut, *Æsculus Hippocastanum*, is in no way allied to the sweet chestnut except in name. It is a strikingly beautiful tree, especially in spring, with its large digitate leaves, and conspicuous spikes of white flowers. A useful starch may be extracted from its kernels, but this has not hitherto been practiced on an economic basis. The entire tree must be regarded as more ornamental than useful.

CHEVAL-DE-FRISE, in Fortification, is a substitute for a regular abattis, to stay the progress of an advancing enemy. It may be constructed of wood or iron, provided it presents an array of sharp or ragged points toward the enemy. Sometimes it is made of barrels or centers of timber, with spears springing out from all sides, in such a way as to constitute both a support and a defense.

CHEVALIER (Fr. *cheval*, a horse), in Heraldry, a horseman armed at all points. In its more general acceptation it signifies a knight.

CHEVIOT HILLS, a range extending a distance of about thirty-five miles along the confines of England and Scotland, mainly situated in Northumberland, but partly also in Roxburgh. The range is now chiefly famous for a valuable breed of sheep, which find abundant pasture on its smooth declivities.

CHEVRON, in Architecture, a molding in the form of a succession of chevrons, otherwise called a zigzag molding.

CHEVRONS are small braids or bands of lace, worn on the shoulders as distinguishing marks by non-commissioned officers of the regular army.

CHEYENNE, the capital of Wyoming, and county seat of Laramie county, is situated on the eastern slope of the Laramie Range, at an elevation of 6,045 feet above sea-level. It is 106 miles north of Denver, and 516 miles west of Omaha, and is at the junction of the Union Pacific railroad, and the Denver, Pacific and Colorado Central. Cheyenne has three national banks with a capital of \$700,000. Coal and iron are found in the neighborhood. The town was laid out July 4, 1867, by engineers connected with the Union Pacific railroad, and it soon became known as a typical railroad frontier town. In 1876 it got a "boom" as the outfitting point for the Black Hills, where gold was discovered in that year. The principal public building of Cheyenne is the handsome new State House, erected at a cost of \$300,000. It is built of native sandstone, quarried in Carbon county; its width is 216 feet; depth from 83 to 112 feet; there are five floors, and the dome rises to a height of 153 feet. The population of Cheyenne is 11,690. The Union Pacific depot cost \$100,000; Cheyenne and Burlington depot, \$65,000; Opera House, \$40,000; Cheyenne Club House, \$30,000; County Hospital, \$20,000; all are fine structures. There is a convent built at a cost of \$50,000; and the water works cost \$260,000. Three daily and three weekly newspapers are published; there is a free public library of 3,000 volumes; the city is lighted by gas and electricity, and has street-cars, electric fire alarms, and the telephone service. Among the manufacturing industries are one carriage and three wagon factories, a planing mill, cigar factories, a creamery, iron foundries, a soap factory, extensive stock yards, and beef packing houses. Cheyenne possesses a board of trade, and a real estate exchange, and since Wyoming had become a State the city has developed new prosperity. It is a considerable shipping point for bullion.

CHEYENNE INDIANS, a tribe of the Algonquins,

or Dakotas, first met with by Lewis and Clarke in 1803, where they occupied the Black Hills country. The United States Government made many treaties with them, in spite of which they have been, until recently, in constant conflict with the whites. In 1864 a massacre of 100 of them by a body of Colorado militia brought on a war which lasted many months, and cost hundreds of lives and \$30,000,000. In 1867 there was more fighting with them and their allies, the Arapahoes, but finally they were subdued by General Custer. When, in 1877, it was decided to remove the northern remnant to the Indian Territory there was much dissatisfaction. The next year several hundred of them broke away and the story of their heroic attempt to reach their old home in the North forms one of the most romantic chapters in Indian history.

CHÉZY, ANTOINE LÉONARD (1773-1832), a French orientalist, was born at Neuilly in 1773. About 1803 he commenced the study of Sanskrit, though he possessed neither grammar nor dictionary, and, by means of great labor, he obtained so complete a knowledge of the language that he composed in it verses which are said to possess great elegance. He had besides a considerable acquaintance with other Eastern languages; and his attainments place him in a high rank among Orientalists. His merits were recognized by his appointment to the chair of Sanskrit in the Collège de France, in 1803, and to the dignity of chevalier of the legion of honor.

CHHATISGARH, a division or commissionership of British India, under the jurisdiction of the chief-commissioner of the Central Provinces, comprising the districts of Raipur, Bilaspur, and Sambalpur, and several small feudatory states. It is bounded on the N. by Sohagpur in the Rewah state and by the Sirgújá and Udáipur states of Chutiá Nágpur; on the E. by the Orissa tributary states and the northern districts of Madras; on the S. by the Bastár state of the Central Provinces; and on the W. by the districts of Chándá, Bhándará, Bálághát, Seoni, and Mandlá. The area is 39,647 square miles; the population is 3,289,043.

CHHINDWÁRÁ, a district of British India, in the Nerbudda division of the Central Provinces, is bounded on the N. by the districts of Hoshangábad and Narsinhpur, on the E. by Seoni, on the S. by Nágpur, and on the W. by Betul, and contains an area of 3852 square miles. The district has two distinct natural subdivisions—the hill country above the slopes of the Sátpurá Mountains, called the Bálághát, and a tract of low land to the south called the Zerghát. The total population of the district is classified as follows:—Hindus, 191,669; Mohammedans, 9747; Buddhists and Jains, 574; Christians, 105; "other denominations," consisting of aboriginal tribes, 114,000.

CHHINDWÁRÁ, the principal town and administrative head-quarters of the district of the same name, situated on the banks of the Bodrí nálá. Pop. 9,000.

CHIABRERA, GABRIELLO (1552-1637), the Italian Pindar, as he is sometimes called, was of patrician descent, and was born at Savona, a little town in the domain of the Genoese republic, twenty-eight years after the birth of Ronsard, with whom he has far more in common than with the great Greek whose echo he sought to make himself. At the ripe age of fifty he took to himself a wife, one Lelia Pavese, by whom he had no children. After a simple and blameless life, during which he produced a vast quantity of verse—epic, tragic, pastoral, lyrical, and satirical—he died in 1637, at the patriarchal age of eighty-five.

An epitaph was written for him in elegant Latin by Urban VIII.; but on his tombstone are graven two quaint Italian hexameters of his own, in which the

gazer is warned from the poet's own example not to prefer Parnassus to Calvary.

CHIARAMONTE, a town of Sicily, in the province of Syracuse, and 32 miles west from the city of that name. It is regularly built, with broad and straight streets. The view from the Capuchin convent is one of the finest in Sicily; and there is a well-preserved castle. The environs produce good wine. Population, 9,300.

CHIARI, an ancient walled town of Italy, in the province of Brescia, and 12 miles west of the city of that name, near the left bank of the Oglio. In 1701 it was the scene of the victory of the Austrians under Prince Eugene over the Spaniards and French. Population, 9,479.

CHIAR-OSCU'RO (Ital.), an artistic term, composed of two Italian words, the one of which signifies light, the other darkness or shadow. But *chiar-oscuro* signifies neither light nor shadow; neither is it adequately described by saying that it is the art of disposing of both the lights and shadows in a picture, so long as either is regarded apart from the other. It is rather *the art of representing light in shadow and shadow in light*, so that the parts represented in shadow shall still have the clearness and warmth of those in light, and those in light the depth and softness of those in shadow. It is not the making of the one die softly and gradually away into the other, but the preservation of both in combination, as we constantly see it in nature, when the light is not the mere glare of the sun striking on a particular object, nor the shadow the entire absence of the influence of light. That the skilful treatment of *chiar-oscuro* is a matter of extreme difficulty is plain enough from the very small number of artists who ever attain to it. Still, it is a branch of art without the mastery of which no painting can be successful in any department. It is as indispensable in portrait-painting as in the highest departments of ideal arts; and though a just and even a lofty conception of the subject may be distinctly indicated by attention to form alone, it is impossible that its realization can ever be satisfactorily accomplished by any one who has not mastered this most subtle mode of handling colors. The only mode by which a knowledge of *chiar-oscuro* can be attained, so as to apply it to practice, is by studying it as exhibited in the works of such painters as Titian, Rubens, Rembrandt, and Correggio.

CHIASTOLITE, a variety of the mineral Andalusite.

CHIAVARI, a maritime town of North Italy, in the province of Genoa, and 21 miles E. S. E. of the town of that name, on the Gulf of Rapallo, at the mouth of the Sturla. The Genoa and Sarzano railway passes the town. The inhabitants, numbering about 11,500, are engaged in the manufacture of furniture, silk twist, lace, and linen, and in the anchovy fishery.

CHIAVENNA, or CLAFEN, a small town of Italy, in the province of Sondrio, in a deep valley, on the right bank of the Maira, and about seven miles from its entrance into the Lake of Como. From its situation at the junction of the great roads over the Splügen and Septimer, between Germany and Italy, it is a place of considerable trade, especially in the wines of the Valtelline and the pottery manufactured in the vicinity. Its principal manufacture is silk, and its beer is reckoned the best in Northern Italy. Population, 4,000.

CHICA, a dyestuff giving an orange-red colour to cotton. It is obtained by boiling the leaves of a species of *Bignonia* (*B. chica*), a climber of the banks of the Cassiquiare and the Orinoco. The Indians use it for painting their bodies. See BIGNONIACEÆ.—CHICA, or CHICHA, is also the name of a kind of beer made from Maize.

CHICACOLE, a town of the district of Ganjam,

in the Madras province, on the Languliya River, 567 miles NE. of Madras by the Grand Trunk Road. For many years it was a military station, and has a reputation for muslins. Pop., 16,355.

CHICAGO, the capital of Cook county, Illinois, the second city of the Union in population and commercial importance, and the sixth city of the world in number of inhabitants, is situated on the west shore of Lake Michigan, at the mouth of the Chicago river. Its position, 911 miles in a direct line from New York, and 2450 miles from the Pacific coast, at the head of lake navigation and the central point of 90,000 miles of railroad, marks it as pre-eminently the commercial centre of the United States. Its history is little less than a miracle. But two generations ago it had practically no existence, although as early as 1779 a log cabin on the bank of the river, tenanted by a negro trapper, marked the site of the future metropolis. In 1803 a military post was founded and called Fort Dearborn, after the distinguished soldier of that name. In the War of 1812 this post was evacuated by the United States troops, who, with a number of settlers, were massacred at a point within the present city limits. The fort was destroyed, but was rebuilt in 1818, and around this the usual features of a cross-roads village—a tavern, a store or two, a school-house and some log-cabins, tenanted by hunters and fur-traders, sprang up.

The position of Chicago, at the head of navigation on Lake Michigan, attracted the attention of intending settlers, and under the law of 1829 a town site was laid out by the Canal Commissioners. This included three-eighths of a square mile. Three years later the town was organized by the election of a Board of Trustees. It then covered 560 acres, had 550 inhabitants and 195 buildings. The area of Chicago in 1892 is over 180 square miles. It extends from the southern boundary of Evanston to the Indiana State line, over 24 miles, and has an average width of 8 miles. The site is a level prairie, hardly broken by any elevation of more than a few feet. Originally the land bordering on the lake and river was little better than a swamp, the elevation above the lake datum not being more than seven feet. Through the town the two branches of the river meander, uniting within what is now the business district, and falling into Lake Michigan. About 1855, when the city had begun to attain considerable prominence as a shipping and commercial point, its population then being about 80,000, a great improvement was inaugurated. The entire level of the downtown district was raised seven feet, the houses and hotels being lifted by jack-screws, and the streets filled in. The work of filling in other quarters was carried on for many years, the result being that the entire level was raised beyond the reach of water and an adequate system of drainage provided. As the river, or bayou, for it is little else, had little or no fall to the lake, a cut of six feet was made through the limestone formation at the lower end of the South Branch of the stream, connecting it with the Illinois and Michigan Canal. In consequence of this the Chicago river now empties into the canal or into Lake Michigan according to the stage of water. The river has become a canal and furnishes dockage for an immense fleet of steam and sail craft.

It being necessary to keep the river open for large vessels the bridges of Chicago are all of the draw pattern. There are some 50 of these bridges, most of them of iron and steel and operated by steam power. Two tunnels under the Main and the South Branch, constructed originally for vehicular and pedestrian traffic, are now used by the cable railroads, and a third tunnel is almost completed. The scores of railroads, which have done so much to build up Chicago, enter the city

for the most part on the street level. For the accommodation of traffic 35 massive viaducts have been constructed and many more are projected. The proposition to either depress or raise the grade of the railroads has been long debated and some method of settling the question of improved terminal facilities will have to be adopted. Intramural traffic is carried on by means of cable lines, horse cars and electric railroads, the latter in outlying districts. Elevated railroads have been built, and in June, 1892, the first was put in operation. Including sidings and switches, Chicago has a larger mileage of surface railroads than any other city.

The total mileage of tracks in use by the several street railroad companies in 1892 was 392 miles.

Chicago has, as we have stated, an entirely level site, and, with its rapid and phenomenal growth, the problem of drainage and the disposition of sewage has become a leading one. In 1890 the legislature of Illinois provided for the creation of a Drainage District, to be administered by Commissioners elected by the people, who should devise a plan for a permanent drainage and sewerage system. The plan as adopted contemplates the construction of a drainage canal extending from Chicago to Lockport, 34 miles, and connecting with the Illinois river, and by that with the Mississippi. Alternative plans involving the utilization of the Illinois and Michigan Canal and the deepening of the Desplaines river have been suggested, while a strong effort is being made to construct the canal of sufficient dimensions to carry ocean-going ships, affording a direct water way from the Great Lakes to the Gulf of Mexico.

The marvelous growth of Chicago is unrivalled in the history of cities, and it is extending as rapidly as ever. In 1837, when it was incorporated as a city, it had 4170 inhabitants and the United States census of 1840 gave it 4,497. In 1850 it had almost reached the 30,000 mark; in 1860 it had 109,206 people. Ten years later the census showed 306,605 inhabitants. The great fire of 1871 and its successor of 1874, the financial panic of 1873 and succeeding years came and passed away without hindering the growth of the city, and in 1880 there were almost half a million people in the then city limits. From time to time these limits were increased, and in 1889 suburbs were annexed which gave the city an area of over 180 square miles. The last (1890) United States census gave a population of 1,099,850; the school census, more carefully taken at the same time, showed 1,208,669. Since that time, owing in part to the influx of workmen employed upon the Columbian Exposition buildings, but more largely to the natural growth and accession by immigration, not less than 150,000 have been added, and the year of the World's Fair will find 1,500,000 within the gates of the Garden City.

The most notable event in the history of Chicago was the fire of 1871, the largest of modern times. The conflagration commenced by the overturning of a lamp, in a district built up almost exclusively of wood, about 9 o'clock in the evening of Sunday, October 8, 1871; it continued through that night and the greater part of the next day, lapping up great blocks of houses, and growing by what it fed on. It was finally checked by explosions of gunpowder in a line of houses on the south of the fire, and exhausted itself on the north by burning all there was to ignite. The area burned over in each division of the city was as follows: West division (in which the fire originated), 194 acres; South division, 460 acres; North division, 1470 acres. The total area burned was 2124 acres, or nearly $3\frac{1}{3}$ square miles, about 4 miles in length, and from 1 to $1\frac{1}{2}$ miles in width. The season had been excessively dry; the rainfall in Chicago for the summer had been only $28\frac{1}{2}$ per cent. of the average. There was a strong south-

west wind, made a very sirocco by the heat, and taking irregular, fantastic and uncontrollable off-shoots and eddies, which spread the fire in all directions except west. The city fire department, though large and efficient, had been exhausted by an unusually extended fire the Saturday preceding, and the flames outran even their earliest efforts. Wooden buildings were scattered throughout the entire city, acting as brands to spread the conflagration. These were the main conditions of the fire. The total number of buildings destroyed was 17,450, and 98,860 people were rendered homeless; of the latter 250 perished in the flames or lost their lives from exposure. Thousands, flying before the flames, sought refuge in the lake, and remained standing in the water for hours as the only means of preservation against the intense heat and the showers of sparks and cinders. Among the buildings destroyed were the custom-house, post-office, courthouse, chamber of commerce, and nearly all the churches, railway stations, hotels, banks, theaters, newspaper offices, and buildings of a quasi-public character. It is estimated that 73 miles frontage of streets was burned over, most of which had been improved with wood block pavements; these were partially destroyed. The total loss has been estimated at \$196,000,000,—of which \$53,000,000 represented the value of the buildings destroyed, \$58,710,000 the personal effects, and the remainder business stocks, produce and manufactures of every description. On the losses there was an insurance of \$88,634,122, of which about one-half was recovered. A vast system of relief was organized, which received the most generous aid from all parts of the world. The money contributions from the various States and from abroad were \$4,996,782; of this England contributed nearly \$500,000. These funds, which were over and above the contributions of food, clothing and supplies, were made to last, under the careful and honest administration of a society of citizens, till the close of the year 1876. Out of them temporary homes were provided for nearly 40,000 people; barracks and shelter-houses were erected, workmen were supplied with tools and women with sewing-machines; the sick were cared for and the dead buried; and the poorer classes of Chicago were probably never so comfortable as within two or three years after this fire. The work of rebuilding the city was accomplished with marvelous rapidity. Immediately after the fire, the most sanguine persons predicted that it would require at least ten years to restore the buildings that had been destroyed. But within three years the city was provided with buildings equal in capacity and of two-fold value. The work was begun before the cinders were cold, and the population seemed to gain new ambition and new energy from the disaster. The "fire limits" were extended so as to prevent the erection of other than stone, brick or iron buildings within a large area, and subsequently this prohibition was applied to the entire city. The result has been to make new Chicago the most beautiful city in America in its business center.

But it is within the last five years that the architectural development of Chicago has been greatest and most marked. The construction of buildings of 12, 14 and even 18 and 20 stories has become so common that the erection of half-a-dozen new "skyscrapers" is hardly noticed. Office buildings containing from 400 to 600 rooms are common, and even larger buildings are projected. No city on earth can boast of such commercial buildings as Chicago, while the structures devoted to manufacturing purposes are unequalled anywhere. Side by side with this, the erection of public buildings and private residences has been carried on. As the frame structures years ago gave place to brick, so the latter have been replaced by artistic creations in stone, and by massive

warehouses, factories and office buildings of steel with glass fronts or terra-cotta facings. An entirely new style of building has been inaugurated, and its results attract the attention of all. During the year 1891 there were constructed 11,805 new buildings, with an aggregate frontage of 282,762 linear feet, or over 53 miles, the cost being over \$54,000,000.

These buildings were distributed in the divisions of the city as follows :

DIVISION.	No. Buildings Erected.	Aggregate Frontage in Feet.	Estimated Value.
North.....	501	15,187	\$4,490,300 00
South.....	1,063	32,322	20,180,200 00
West.....	3,691	92,898	12,613,900 00
Hyde Park.....	2,103	48,037	8,260,100 00
Town of Lake..	3,008	62,799	5,503,400 00
Lake View.....	1,439	31,429	2,953,900 00
Grand Totals,	11,805	282,672	\$54,001,800 00

The Park system of Chicago is one of the most extensive in the world. Two parks are in the South Division, one containing 372 acres, and the other 586 acres. The latter has a frontage on Lake Michigan of $1\frac{1}{2}$ miles, and the two embrace 27 miles of interior drives and 50 miles of walks. The larger of the two has a series of interior lakes connected with Lake Michigan, and protected by a pier several hundred feet long, so that they may be reached by boats from the lake. The approaches to these two parks are two roadways, each 200 feet wide, known as Grand and Drexel Boulevards. The former may be compared to Rotten Row in Hyde Park, London; the latter is modeled after the Avenue de l'Impératrice, Paris, with a continuous stretch of floral ornamentation in the centre. The West Division parks, inside the city limits, comprise Humboldt Park, 200 acres; Garfield Park, 185 acres; and Douglas Park, 180 acres. The ornamentation is varied and elaborate. Lincoln Park, within the northern limits of the city, contains about 250 acres, and has a lake shore drive of several miles. All these parks are connected by wide roadways, varying from 150 to 300 feet in width, and giving a continuous drive of 35 miles. The parks are supplied with water from a number of artesian wells. Besides these principal parks there are the following public places in the different divisions of the city:—Lake Park, 41 acres; Union Park, 14 acres; Jefferson Park, 6 acres; Washington Square, 2 acres; Union Square, 1 acre; Dearborn Park, 1 acre; Ellis Park, 3 acres; Vernon Park, 4 acres; Wicker Park, 4 acres; Gage Park, 20 acres. There are thus 1975 acres, or more than three sections of land, set aside by Chicago for public grounds.

The City Government of Chicago is vested in a Mayor and Common Council. Each of the thirty-four wards has two Aldermen, elected by popular vote; one-half the Aldermen retiring each year. The Mayor, City Treasurer and City Clerk are each elected for two years. The Mayor appoints all heads of departments and bureaus, such as the Comptroller, Commissioner of Public Works, Chiefs of Police and Fire Departments, and the like, subject to confirmation by the Council. The Council possesses all legislative power as to taxes, appropriations and the granting of franchises, subject to a veto on the part of the Mayor, which can be over-

ruled by a two-thirds vote. Under the constitution of Illinois the bonded debt of the municipality is limited to five per cent. of the taxable valuation. The township system of government has been retained and assessments are made and collected by town officers.

The water supply is derived from Lake Michigan by means of tunnels extending far out under the bed of the Lake to "cribs," or inlets constructed for the purpose. The main pumping station is situated near the lake shore on Chicago avenue; there is another on Blue Island avenue, a third at Desplaines street, and a fourth at Fourteenth street and Indiana avenue. The former suburbs of Hyde Park and Lake View, now included in the city, have water works and tunnels of their own. The original system consists of two tunnels, one five feet and the other seven feet in diameter, into which the water enters through iron cylinders sunk into the bottom of the Lake. At the shore end the water is pumped through a stand-pipe in a tower, which gives a head pressure of 105 feet. One of the tunnels is continued four miles through the city, passing under the Chicago river, to the Western pumping house, which is furnished with four powerful engines. The new four-mile crib is connected with the land by two tunnels, each six feet in diameter, and these will supply water to the new pumping works, now practically completed. The City owns its own water works, which have cost, up to January 1, 1892, \$19,061,000, and are estimated to be worth more than double that amount. The total receipts on water works account to the same date were \$27,500,511, showing a gain to the city of \$9,416,321. The amount of water taxes for 1891 was \$2,364,433, and the number of gallons furnished was 63,552,000,000, which, on the basis of a population of a million and a half, allows for every man, woman and child 118 gallons per diem.

The Great World's Fair.—As the site of the great World's Columbian Exposition of 1893, Chicago has made itself known to the ends of the earth. The Exposition, which is intended to celebrate the quadricentenary of the discovery of the Western Hemisphere by Christopher Columbus, promises to be, both in magnitude and intrinsic importance, the greatest World's Fair ever known. It will be opened to the public on May 1, 1893, and will close on October 26 of that year. Dedicatory services will be had on October 12, 1892, the anniversary of Columbus' first landing on American soil. The Exposition is conducted under the management of a National Commission, appointed by Congress, and a Local Board of Directors. A Board of Reference and Control, made up from the two organizations, settles all disputed questions. The affairs of the Local Board are delegated to committees, and the Exposition management proper is conducted by bureaus under the control of a Director-General. A Board of Lady Managers also participates in the administration. The Federal government, every State and Territory of the Union, and over fifty foreign governments, ranging in importance from Great Britain, France, Germany and Russia, down, will be represented as they never were before.

The Exposition buildings occupy all of the southern portion of Jackson Park lying between Stony Island avenue, on the west, and Lake Michigan, on the east, and extending south from Fifty-sixth to Sixty-seventh street. The Midway Plaisance, running from Washington to Jackson Park on the line of Sixtieth street, and covering 80 acres, is also devoted to Exposition purposes. Altogether the grounds cover 664 acres, all of which have been magnificently improved by grading, draining, the construction of roads and sidewalks, and of lakes, canals, piers and sea walls. The total

area of the forty-five Exposition buildings is about 160 acres, and the gallery space extends over 45 acres more. The dimensions of the principal buildings are as follows:

BUILDINGS.	Dimensions in Feet.	Floor Space, Acres.
Manufactures and Liberal Arts....	787 x 1687	30.5
Administration.....	262 x 262	1.6
Mines.....	350 x 700	5.6
Electricity.....	345 x 690	5.5
Transportation.....	256 x 960	5.6
“ Annex.....	425 x 900	8.8
Women’s.....	199 x 388	1.8
Art Galleries.....	320 x 500	3.7
“ Annexes (2).....	120 x 200	1.1
Fisheries.....	165 x 365	1.4
“ Annexes (2).....	135 diam’r	.8
Horticulture.....	250 x 998	5.7
“ Greenhouses (8).....	24 x 100	.5
Machinery.....	492 x 846	9.6
Machinery Annex.....	490 x 550	6.2
“ Power House.....	100 x 461	
“ Pumping Works.....	77 x 84	.1
“ Machine Shop.....	146 x 250	
Agriculture.....	500 x 800	9.2
Agriculture Annex.....	300 x 550	3.8
“ Assembly Hall, etc ...	125 x 450	1.3
Forestry.....	208 x 528	2.5
Saw Mill.....	125 x 300	.9
Dairy.....	100 x 200	.5
Live Stock (3).....	65 x 200	.9
Live Stock Pavilion.....	280 x 440	.8
“ “ Sheds.....		40.
Casino.....	120 x 250	.7
Music Hall.....	120 x 250	.7
U. S. Government.....	345 x 415	3.3
U. S. Imitation Battleship.....	69 x 348	.3
Illinois State.....	160 x 450	1.7
Illinois Wings (2)	...	.3
		159.4

The building devoted to Manufactures and the Liberal Arts is by far the largest under one roof in the world, and the immense girders which span its centre aisle are two and a half times larger than any others in existence. This building has more than thirty acres of floor space, without counting its galleries. The Mining, Transportation, Machinery, Electricity, Horticulture and other buildings are all vast structures of brick, iron and glass. The walls are uniformly treated in imitation of white marble, being coated with a preparation known as “staff,” which is incombustible. More than \$3,000,000 will be expended by the Exposition Company upon buildings, while foreign nations, the United States and the different States and Territories will each erect buildings for their own exhibits, and at their own cost. Several million dollars will be spent upon grading and filling and the construction of lakes, bridges and piers; on landscape gardening, electric lighting and the building of railways within the grounds. It is estimated that the Exposition will represent an expenditure of more than \$28,000,000 before the doors are opened to the public.

Aside from the buildings devoted entirely to the drama, Chicago possesses an infinite variety of public buildings and halls. First of these is the great Auditorium, completed in 1889, which cost, inclusive of the ground, \$5,000,000. This has a street frontage of 710 feet, and is surmounted by a tower 270 feet high. The main hall, used for concerts, dramatic representations and public meetings, can seat 8,000 people. In this hall, before it was completed, was held the National Republican Convention of 1888. The Auditorium

also finds space for an immense office building and a magnificent hotel of 400 rooms. Farwell Hall, the headquarters of the Young Men’s Christian Association, Battery D Armory, the First Cavalry Armory, and nearly a hundred smaller halls, afford facilities for public meetings, balls, concerts and assemblies.

The hotels of Chicago are a household word the world over, and owing to its magnificent hotel accommodations, and its delightful summer climate, the city has become so much in demand for great public gatherings that is popularly known as the “Convention City.” No matter how large the crowds of visitors may be, accommodation is found for all. In view of the approaching Columbian Exposition vast accessions have been made, several hotels of from 300 to 800 rooms each having been built, while many more will be ready for occupancy before the opening of the fair. Of the best-known hotels there are the Palmer House, Grand Pacific, Sherman, Tremont, Leland, Richelieu, Wellington, Auditorium, Clifton, Briggs, Brevoort, Woodruff, Southern, Gault, Northern and Hyde Park. There are hundreds of family and European hotels, and thousands of boarding houses.

There are twenty-one recognized theatres in Chicago, besides a large number of museums, and other minor places of amusement. Of the leading temples of Thespis the chief are: McVicker’s Theatre, the Auditorium, the Chicago Opera House, the Haymarket, the Grand Opera House, Hooley’s, the Columbia, Havlin’s, the Casino, the Criterion, the Academy of Music, the Olympic and the People’s Theatres. The New German Theatre, just completed and to be opened to the public before the end of 1892, will undoubtedly be the finest theatrical building in the West.

Hospitals and charitable institutions abound in Chicago, and without exception are open to all in sickness and distress, no distinction of nationality or religion being made, although many of the institutions are under the management of denominational organizations. Cook County Hospital, one of the largest in the United States, is maintained by taxation and affords relief to over 500 resident patients. The Hospital buildings, which include a Detention Hospital for the insane, a Contagious Diseases Hospital and a Morgue, occupy twelve acres of ground in the West Division. This is the quarter devoted to medicine. Hard by stand the Presbyterian Hospital, with 175 beds, aside from its maternity and convalescent departments; the Chicago Homœopathic Hospital, the Hospital for Women and Children, and half a dozen medical colleges, elsewhere named. Of other hospitals the chief are the Alexian Brothers, Augustana, Bennett, Chicago Emergency, the Floating Hospital in Lake Michigan, the German Hospital, Halinemann, Hebrew, Maurice Porter, Linnæan, Mercy (under the charge of the Sisters of Mercy,) Michael Reese, National Temperance, Provident. Railway Brotherhood, St. Elizabeth’s, St. Joseph’s, St. Luke’s, St. Vincents (infant’s and maternity,) Wesley Hospital and the Woman’s Hospital. The United States Marine Hospital, for the special care of sailors, is situated in Lake View. There are twenty-eight free dispensaries in Chicago.

Of charitable institutions there is no end. Cook County appropriates a large sum every year for outdoor relief, distributed by the County Agent, and maintains a Poor House and Infirmary at Dunning, where nearly a thousand aged and indigent persons are sheltered. The County Insane Asylum is located at the same place. More than \$3,000,000 is subscribed every year for the support of deserving charities, of which a few only can be named, such as the Nursery and Half Orphan Asylum, Erring Women’s Refuge,

Foundling's Home, German Old People's Asylum, Home for the Aged, House of the Good Shepherd (reformatory,) Chicago Relief and Aid Society, Home for the Friendless, St. Mary's Training School for Boys, Waif's Mission, Washingtonian Home, Seamen's Friend Society, Soldier's Orphans' Home, Industrial School for Boys, Industrial School for Girls.

Chicago may justly lay claim to the title of the City of Churches, which both in number and architectural beauty rival those of any city. Every denomination is represented, the church edifices being located in all parts of the city, except the purely business district. The only down-town church is the First Methodist, although two flourishing congregations, those of Prof. Swing and Dr. Thomas, worship in the Central Music Hall and McVicker's Theatre respectively. The different denominations are represented as follows: Baptist, 35 churches, 8 missions; Congregational, 50 churches, 21 missions; Christian, 5 churches; Evangelical Association, 9 churches; Evangelical Lutheran (English), 4 churches; Evangelical Lutheran (Danish), 3 churches; Evangelical Lutheran (German), 27 churches; Evangelical Lutheran (Norwegian), 8 churches; Evangelical Lutheran (Swedish), 5 churches; Evangelical Lutheran (Separatists), 2 churches; Evangelical, United, 13 churches; Evangelical, Reformed, 2 churches; Episcopal, Protestant, 22 churches, 8 missions and chapels; Episcopal, Reformed, 15 churches, 3 missions; Free Methodist, 4 churches; Independent, 4 churches; Jewish, 16 churches; Methodist Episcopal, 53 churches; Methodist Episcopal (African), 6 churches; Methodist Episcopal (German), 12 churches; Methodist Episcopal (Bohemian), 2 churches; Methodist Episcopal (Swedish), 11 churches; Methodist Episcopal (Norwegian), 5 churches; Presbyterian, 39 churches, 20 missions; Presbyterian (United), 1 church; Roman Catholic, 90 churches; Swedenborgian, 1 church; Unitarian, 2 churches; Universalist, 7 churches; Miscellaneous, 5 churches: making a total of 518 churches and missions in the city. The Catholic and Episcopalian churches have cathedrals. Chicago is the residence of the Catholic Archbishop and of the Episcopal and Reformed Episcopal Bishops.

Chicago has developed within the last fifteen years very largely in the direction of social clubs. Chief among these, and possessing a magnificent club building near the Post Office, is the Union League Club, with a membership of 1,200. The Chicago, Marquette, Ashland, La Salle, Calumet, Standard, Illinois, Iroquois, Lincoln, Grant, Hyde Park, Kenwood, Oakland, Union, Union Veteran and Washington Park Clubs, are among the most popular, most of them possessing fine club rooms and halls. Of athletic and sporting clubs the most prominent are the Chicago Athletic Association, the Farragut Boat Club, the Illinois Cyclists, the Argo Club, the Chicago, Evanston and Lincoln Park Yacht Clubs, several Cricket Clubs and a score or more of flourishing Cycling and Baseball Clubs. The Audubon, Mak-saw-ba, Tolleston and Gun Clubs are devoted to field sports. There are a number of State social organizations such as the Sons of New York, Maine, etc., half a dozen clubs like the Sunset, Commercial, Bankers' and Fortnightly, for the purposes of "dinner and discussion," and an endless procession of professional clubs. One of the best known of the latter is the famous Press Club of Chicago, composed entirely of active newspaper workers, and probably the most democratic body ever organized. It has 250 members, and is about to build a very handsome house for its accommodation.

The Chicago Public Library was founded in 1872, its starting point being a contribution of several thousand volumes of books from English authors. It contains

over 175,000 volumes and circulates over 1,300,000 volumes a year, while its reading and reference rooms are visited by more than half a million persons annually. The Newberry Library, which is intended for reference only, has some 80,000 volumes in its temporary home, while its magnificent permanent building, to cover an entire block, is rapidly approaching completion. The Crerar Library, like the Newberry, the gift of a patriotic citizen, has not yet found an abiding place, but will ultimately rival all others. Besides the club and literary association and private libraries may be named the Pullman, Ravenswood, South Chicago and Union Catholic and the very extensive libraries of the Universities, Colleges and other educational institutions.

Among the artistic sights of Chicago the chief is the Art Institute, which occupies a fine building on Michigan avenue. It contains an art museum and six picture galleries, and is open free on Saturdays and Sundays. A magnificent new building for the purpose is in process of construction on the Lake Front at a cost of \$600,000. There is a school of art connected with the Institute. The Chicago Society of Artists have studios in the Athenæum building, and the private collections of Chicago are numerous and well selected. Literature flourishes, for Chicago is the largest book-producing centre in the United States, and aside from its daily newspapers, which are referred to elsewhere, it sends forth countless weekly and monthly publications. In this respect the progress of the last ten years has been phenomenal. Of literary clubs the chief are the Chicago Library, the Chicago Literary, the Twentieth Century, the Illinois Woman's Press Association, and the Papyrus Club.

Chicago possesses 24 daily, 260 weekly, and 65 miscellaneous publications, covering every field of newspaper enterprise. The morning dailies, the *Tribune*, *Herald*, *Times*, *Inter-Ocean*, *News-Record*, *Staats-Zeitung*, *Daily Skandinavien*, and *Freie Presse*, are newspapers of wide circulation comparing favorably with metropolitan journals. Several of the afternoon papers have a great circulation, and the Sunday papers are marvels of journalistic ability. As a publishing centre Chicago stands unrivaled in the United States. It is the home of encyclopædic and subscription books, of maps and atlases and of railroad printing.

The private residences of Chicago, mostly erected since the great fire, are largely of stone, and embrace every style of architecture. The principal avenues and the streets of the residential quarters present a handsome appearance. Lawns and gardens abound, the streets are wide and lined with shade trees, and as everything is new and well-kept, the scene is extremely attractive. The homes of the working people, which are to a great extent owned by themselves, are of brick or frame, and are multiplying at a great rate. Stringent ordinances prevent the erection of frame buildings within certain limits, and the tendency is all in the nature of improvement. Thanks to the fire, which swept away so many thousands of old buildings, Chicago has few "slums," and even the poorest are comfortably housed. Within the past ten years, there has been an immense development of "flats" and apartment houses, many of the latter being of gigantic proportions, and provided with every modern convenience and luxury. During the same period, the suburbs have filled up, until they, too, have become towns, only to be in turn absorbed by the ever-reaching arms of the mother city, whose limits have been several times increased, and now extend over 180 square miles of territory.

The bonded debt of Chicago on January 1, 1892, was \$13,530,350; water certificates outstanding, \$1,000,000. On the same day there was a balance in the city treasury of \$1,967,722. The total receipts for the

year ending December 31, 1891, were \$29,550,560; the total expenditures, \$28,115,931.

The fire department consists of 998 men under the command of a Chief and Assistant Marshals. There are (1892) 99 engine houses, 72 fire engines, 28 hook and ladder trucks, 23 chemical engines, 3 fire boats for service on the river, and 1917 fire alarm boxes. It requires 421 horses to supply the engines.

The police department consists of 2,298 men, under the control of a Superintendent and his Assistants and Inspectors. There are thirty-seven police stations, fifteen patrol barns, each with one wagon; two ambulances and 179 horses are used in the service. There is a complete telegraph and telephone department with 640 miles of wire in use.

The city is lighted by gas and electricity, the former being furnished by incorporated associations and the latter furnished by the city itself. There are 70,076 street lamps, 993 electric lights, and 1,060 miles of wire in use.

The cost to the city for lighting by gas and electricity for the fiscal year 1891 was \$705,664.

The school system is controlled by a Board of Education, appointed by the Mayor. The school fund is a large one, being derived from the rental of property set apart for this purpose, in addition to an annual levy made by the City Council. On January 1, 1892, there were 225 school buildings owned by the city, and seventy-seven rented for school purposes. The average number of children attending the public schools was 126,326, besides over 70,000 pupils attending private schools. There are 3,200 teachers in the public schools. Over \$5,000,000 each year are set apart for school purposes. The school year consists of ten months, divided into three terms. The hours of attendance in the grammar and primary schools are 9 a. m. till noon, and 1.30 p. m. till 3.30 p. m. The principal studies in the grammar schools are theory of arithmetic, problems of arithmetic, geography, history of the United States, language, composition, reading, spelling, penmanship; drawing and music are also taught, and the study of German is optional. The course of studies in the high-schools is that of the higher academies. Corporal punishment was abandoned altogether about the year 1865, and the reading of the Bible was discontinued in 1875, in deference to the dogmatic differences among the religious sects, the theory of the schools being free and secular. Of other educational institutions, besides over one hundred ordinary private schools, there are a large number of "Kindergarten" schools, in imitation of the favorite German system of elementary instruction.

Within the past ten or fifteen years the manufacturing interests of Chicago have developed an extraordinary and sustained advance until now the city ranks as one of the most important centres of production in the United States. In the production of iron and steel, sawed lumber, meat products, leather furniture and the textile fabrics, books and printers' supplies, Chicago ranks high. In 1892 there were 3,600 manufacturing firms with a capital of \$220,000,000; employing 190,000 workmen and paying out \$110,000,000 in wages. The total value of Chicago manufactures in 1890 was over \$570,000,000.

The proximity of Chicago to the vast iron-ore-producing district of Lake Superior and its convenience as a lake port have led to the establishment of several immense rolling-mills and rail-mills, while manufactures employing iron and steel in vast quantities have been established. There are 320 of these, with a capital of \$45,000,000, employing 35,000 men. About 150 industries connected with the brass, copper and other

metal trades have an annual product of \$48,000,000. Electrical supplies, chemical works, tanneries, tool and bicycle factories, brush factories and cooper shops, are largely represented.

The internal revenue collections in the First District of Illinois for the year ending December 31, 1891, amounted to \$12,136,009, nearly \$3,000,000 being on account of distilled spirits, and \$2,224,671 on account of fermented liquors. Some of the largest distilleries and many great breweries are located here. The annual production of distilled spirits averages 10,000,000 gallons.

As a grain market, the fame of Chicago is world-wide. Its railroad and elevator facilities, its position on the lake and the enterprise of its merchants, have made it the greatest primary grain market in the world. It has 27 elevators with a capacity of 30,075,000 bushels. The receipts of grain and flour in its grain equivalent in 1891 were 231,821,429 bushels, and 301,976 cars of grain were inspected in by rail, while 4,699,368 bushels were received by lake and canal. The shipments of flour and grain aggregated 207,987,762 bushels. The clearing-house report of the Board of Trade showed a volume of speculative grain business in 1891 never rivaled. During 1891 the total clearances were \$104,083,529, an increase of \$18,000,000 over the previous year.

The Union Stock Yards cover with their railroad tracks and sheds nearly 400 acres, and are accessible by twenty railroads. The receipts of live stock during 1891 included 3,250,359 cattle, 2,153,537 sheep, 8,600,805 hogs and other cattle, aggregating 14,304,480 animals valued at \$239,434,777, which required 304,706 cars for their transportation. The receipts of cured meats were 206,898,958 pounds, and the shipments 751,584,862 pounds. Of lard 74,021,945 pounds were received and 362,109,099 were shipped. The dressed beef receipts were 105,061,775 lbs. and the shipments 877,295,875 lbs.

The lumber trade, both in the rough and manufactured, is an immense one. In 1891 Chicago received 2,045,418,000 feet, and shipped \$65,949,000. Of shingles 303,895,000 were received and 99,855,000 were shipped.

Chicago has a larger tonnage of shipping and more entrances and clearances of merchant vessels than any other port.

The arrivals and clearances during the past nine years were as follows:

YEAR.	ARRIVALS.		CLEARANCES.	
	No.	Tonnage.	No.	Tonnage.
1883	11,203	3,555,586	11,271	3,743,574
1884	10,513	3,481,957	10,640	3,489,666
1885	9,846	3,347,647	9,910	3,364,169
1885	10,180	3,546,309	10,267	3,594,549
1887	10,828	3,868,465	10,920	3,989,615
1888	10,158	3,990,921	10,308	4,134,064
1889	9,552	4,417,415	9,462	4,402,634
1890	9,188	4,344,502	9,284	4,429,654
1891	8,956	4,569,526	9,144	4,698,320

SOUTH CHICAGO.

YEAR.	ARRIVALS.		CLEARANCES.	
	No.	Tonnage.	No.	Tonnage.
1890	860	707,670	801	634,225
1891	847	870,188	734	724,864

The total arrivals in 1891 were 9,803 with a tonnage of 5,439,714; the clearances numbered, 9,878 with a tonnage of 5,423,184.

The aggregate capital of the twenty-five National Banks is \$22,300,000; surplus, \$12,178,716. The twenty-four State Banks have a capital of \$12,527,000, and a surplus of \$5,766,843. The National Bank deposits aggregate \$133,713,539. The State and Savings Banks carry over \$55,000,000 of deposits. The total clearances of the associated banks of Chicago during 1891 were \$4,456,885,230.

The number of miles of railroad tributary to Chicago is 88,200. It is practically the terminal point of all the great trunk lines of the Union, east, west, north and south, and has direct connections with Canada and the Mexican Republic. Twenty great railroad systems centre here and in the movement of both passengers and freight the city ranks easily first. Within the last few years magnificent depots have been constructed by the different railroads, all of which run into the heart of the business section. A belt line connects or intersects all the trunk lines, thus permitting the transfer of freight from Western to Eastern or Northern roads without the necessity of passing through the city. The State of Illinois alone has over 15,000 miles of railroad, the greatest mileage of any of the United States, and of all this Chicago is the local centre.

As a commercial centre and distributing point for the entire West and Northwest Chicago stands beyond competition. In dry goods, boots and shoes, books, chemicals, crockery and glassware, paper, groceries, manufactured lumber and iron, clothing, hats, tobacco and cigars, musical instruments, hardware, jewelry, coal, liquors, metal goods, carpets, cutlery and a hundred other articles, its wholesale and jobbing trade is enormous. Conservative estimates place the volume of its wholesale and jobbing business in 1891 at over \$600,000,000.

The receipts of the Chicago Post Office in 1891 amounted to \$3,693,877 and over 250,000,000 letters and postal cards were distributed during the year. Over 1100 letter-carriers and 900 clerks are employed at the central office and the sub-stations or in the collection or delivery of mail matter.

Chicago is one of the most cosmopolitan of cities. Of its million and a half of people there are not less than 400,000 of German and 250,000 of Irish birth or extraction. The Bohemians, Poles, Swedes and Norwegians each claim from 50,000 to 60,000 representatives. There is a large French, English and Scotch contingent, several thousand Jews, Russians, Italians, Hollanders and Swiss, and some 1,200 Chinese were reported at the 1891 census.

The twenty-eight cemeteries of Chicago are all located in the immediate suburbs, and several, owing to the rapid growth of the city, are now within the corporate limits. All of these resting places of the dead are beautifully laid out and adorned with shrubs, trees and flowers. In 1891 there were 27,754 deaths in Chicago; the equivalent of 22.20 per thousand inhabitants.

CHICHESTER, a municipal and parliamentary borough, of England, in Sussex. Population (1890) 9,000.

CHICKAHOMINY, a river in Eastern Virginia, near which several battles of the Civil War occurred. From April until July of 1862 the two contending forces confronted each other in the swamps and morasses of this river. Among the battles recorded are those of Williamsburg, Hanover Court House, Fair Oaks, Seven Pines, Cold Harbor, Savage's Station, and Malvern Hill. In the seven days' fight at the end of June, the Confederate loss was double that of the Northern army, and if McClellan had but followed up his advantage he could have taken Richmond and ended the war. Two years later, in June, 1864, Grant drove

Lee back upon the Chickahominy. Lee turned at bay, and in the second battle of Cold Harbor more than held his own.

CHICKAMAUGA, THE BATTLE OF, was fought September 19-20, 1863, at a point about twelve miles from Chattanooga, Tenn., between the Union Army of the Cumberland under Rosecrans, and the Confederates under Bragg. Rosecrans was beaten, but Thomas held his own and saved Chattanooga. Nominally the victory rested with the Confederates, but they were unable to improve it, and after Rosecrans' suppression, Grant and Thomas evened matters up at Chattanooga, November 23-25, of the same year. See CHATTANOOGA CAMPAIGN.

CHICKASAWS, a tribe of North American Indians now settled on a reservation of 6,840 square miles in the Indian Territory on the left bank of the Red river. According to their own tradition and the evidence of philology, they are closely connected with the Creeks and Choctaws; and they believe that they emigrated along with these tribes from the West, crossed the Mississippi, and settled in the district that now forms the northeast part of the state of that name. Here they were visited by De Soto in 1540. From the first they showed a hostile spirit against the French colonists, and frequently engaged with them in actual conflict. With the English, on the other hand, their relations were most satisfactory. In 1786 they made a treaty with the United States; and in 1793 they assisted the whites in their operations against the Creeks. In the early days of the present century part of their territory was ceded for certain annuities, and a portion of the tribe migrated to Arkansas; and in 1832-34, the remainder, amounting to about 3,600, surrendered to the United States the 6,442,400 acres of which they were still possessed, and entered into a treaty with the Choctaws for incorporation with that tribe. In 1855, however, they effected a separation of this union, with which they had soon grown dissatisfied. In the Civil War of 1861-65 they joined the Confederates and suffered in consequence; but their rights were restored by the treaty of 1865. In 1866 they surrendered 7,000,000 acres; and in 1873 they adopted their former slaves.

CHICO, a town of Butte county, Cal., with a population (1890) of 5,500. It has two banks, with a paid-up capital of \$550,000, foundries, machine shops, and manufactories of flour, soap, carriages, plows, etc.

CHICOPEE, a town of Chicopee township, in Hampden county, Massachusetts, at the confluence of the Chicopee river with the Merrimac, 95 miles by rail W. S. W. of Boston. It comprises the villages Cabotville and Chicopee Falls, and forms a flourishing manufacturing centre. The town dates from 1640, and till 1848 formed a part of Springfield. Population in 1890, 14,050.

CHICORY. The Chicory or Succory plant, *Cichorium Intybus* (natural order, *Compositæ*), in its wild state is a native of Great Britain, occurring most frequently in dry, chalky soils, and by road-sides. It has a long fleshy taproot, a rigid branching hairy stem rising to a height of 2 to 3 feet,—the leaves around the base being lobed and toothed, not unlike those of the dandelion. Its roots roasted and ground are used as a substitute for, adulterant of, or addition to coffee; both roots and leaves are employed as salads; and the plant is grown as a fodder or herbage crop which is greedily consumed by cattle.

CHIERI, a town of Italy, in the province of Turin. It ranks as one of the oldest manufacturing centres in Europe, and still prosecutes the fabrication of silk, cotton, and woolen goods. The population is about 12,000.

CHIETI, or CIVITA DI CHIETI, Italy, capital of the province of Abruzzo Citeriore. The principal industries

are the manufacture of woollen and silk goods; and there is a trade in corn, wine, oil, and the other productions of the neighborhood. Teate was the chief city of the Marrucini, and under the Roman dominion continued to be a place of considerable prosperity. It seems to have been the native city of the Asinii and the Vettii. After the fall of the Roman empire it passed into the hands of the Goths and the Lombards, was destroyed by Pepin, and was restored by the Normans. In 1524 it gave its name to the order of the Theatines founded by its bishop Gaetano. Population, 23,000.

CHIHUAHUA, a city of Mexico, capital of the state of the same name, lies in a beautiful valley opening towards the north, and hemmed in on the other sides by arms of the Sierra Madre, 4640 feet above the level of the sea, in $28^{\circ} 38'$ N. lat. and $106^{\circ} 30'$ W. long. The town is regularly built, and the streets are wide and clean, with many handsome and convenient houses, plentifully supplied with water, which is brought to the town by an aqueduct three miles in length. The grand square, three sides of which are occupied by public edifices and stores, and the fourth by the cathedral, an imposing building of the 18th century, has its spacious area adorned with fountains, walks, and benches, and with pillars of white porphyry. The principal buildings, besides the cathedral, are the mint, the prison, which was formerly a Jesuit convent, the house of correction, two hospitals, and the military school. In the square in front of the Jesuit chapel of San Felipe, is a simple monument in memory of the three martyrs of Mexican independence, Hidalgo, Allende, and Ilmenez, who were shot on the spot by the Spaniards. The town was founded in 1691, and in the 18th century was the seat of the captain-general of the Inner Provinces. At the time of its greatest prosperity it had about 70,000 inhabitants; but its present population does not exceed 20,000.

CHILDERS, ROBERT CÆSAR (1838-1876), an eminent Oriental scholar, was the son of the Rev. Charles Childers, English chaplain at Nice. In 1860 he received an appointment in the civil service of Ceylon, which he retained until 1864, when he was compelled to return to England owing to ill health. He had acquired some knowledge of Pāli during his residence in Ceylon, but it was not until the autumn of 1868 that, under the advice of Dr. Rost, he gave himself to the scientific study of the language. Entering at once on the task of preparing a Pāli dictionary, he labored at it with such extraordinary assiduity that he was able to publish the first volume in 1872, and the second and concluding volume in 1875. The work is an enduring monument of learning and zeal, and has been gratefully acknowledged by a competent authority as "the most valuable contribution that has yet been made to the knowledge of Pāli, and as the foundation of all future study of that language." Mr. Childers was a frequent contributor on subjects connected with Buddhism to scientific and literary periodicals. In 1872 he was appointed sub-librarian at the India Office, and in the following year he became the first professor of Pāli and Buddhist literature at University College, London. He died at London on the 25th July, 1876.

CHILI, or CHILE, occupies a strip of land on the western side of South America, extending from 24° to $56^{\circ} 28' 50''$ S. lat., from the Bay of Mejillones to Cape Horn, a distance of 2270 miles. On the E. it is bounded by the Andes, on the W. by the Pacific Ocean, and on the N. by Bolivia. Its breadth varies from 40 to 200 miles, and its area is computed at 256,850 square miles, with a population of 2,665,926. Between lat. 24° and 32° (comprehending the provinces of Atacama, Coquimbo, and the northern half of Aconcagua) the

principal industry is mining; between lat. 32° and 38° (comprehending the southern half of Aconcagua and the provinces of Valparaiso, Santiago, Colchagua, Curicó, Talca, Maule, Nuble, Concepcion, and part of Arauco) the staples are agricultural produce and coal; while the remaining part produces timber, potatoes, and salted meat. The Andes extend in two parallel lines throughout nearly the entire length of the country. Between these two ranges or "Cordilleras" is a table-land, which attains its greatest breadth between lat. 33° and 40° , and which narrows both towards the northern and southern extremity, where the ramifications of both chains meet and form a continuous undulating plain. Chili further lays claim to the whole of Patagonia and Tierra del Fuego.

The Andes commence in the district called the Colony of Magellan, where their general elevation is lowest, the perpetual snow-line only 3000 feet, the highest peak, Mount Stokes, 6400 feet, and the coast excessively rough and broken and full of fiords of immense depth, fed by glaciers descending from the high lands. Northwards, towards lat. 41° , the coast becomes less indented, the range more continuous and elevated, and the peaks higher,—such as Minchinmadiva, 8000 feet, Corcobado Volcano 9158 feet, and Yanteles, 8030 feet. At the southern extremity of the province of Llanquihue, commences the table-land and the parallel granitic belt that skirts the Chilean coast, which together nowhere exceeds 120 geographical miles in breadth from the sea to the Andes. At this lat. the snow-line rises to 8000 feet, at Valparaiso to 12 780 feet, and at Coquimbo to 15,200 feet. The centre table-land is in lat. 41° under 200 feet above the sea; at Talca it rises to 350, at Rancagua to 1560, at Santiago to 1800; and it continues to increase in elevation as it extends northward.

The mean elevation of the Andes in Chili is 11,830 feet. The culminating peak is the volcano of Aconcagua, in the province of Aconcagua, which reaches the height of 22,427 feet. The principal summits to the north of this are Cima del Mercedario, 22,302 feet, and Cima del Cobre, 18,320 feet. South of Aconcagua, in the province of Santiago, are Juncal (19,495 feet), and the volcanoes of Tupungato (20,269), San José (20,000 feet), and Maipu (17,664 feet). In Arauco is the volcano of Villarica, 15,996 feet; in Talca, the great truncate mountain called the Descabezado, 12,757 feet; in the province of Nuble, the volcano of Chillan, 9446 feet; and in Llanquihue, the volcano of Osorno, 7396 feet. In the Chilean range there are 23 volcanoes, of which only a few, such as the volcanoes of Osorno, Villarica, Antuco, and San José, are occasionally active. There are many passes over the Andes from Chili to the Argentine Republic; but the western slope of the mountains being steeper than the eastern, the ascent from Chili is more laborious than from the Argentine Republic, into which the mountains descend by a series of terraces, consisting of Secondary strata terminating in the vast expanse of flat country or "Pampas," occupied by the Tertiary formations. The passes may be said to be open during eight months of the year, but even at their best they can never be traversed by vehicles,—mules being the only means of conveyance. The highest of the passes, as well as the most frequented, are those of Doña Ana, 14,770 feet, and Colguén, 14,700 feet, in the province of Coquimbo; the Dehesa, 14,500 feet, east from Santiago and near the volcano of Tupungato; the Patos, 13,965 feet, and Uspallata, 13,125 feet, both in the province of Aconcagua; and the Planchon, 11,455 feet, in the province of Curicó. The part of the Andes bordering the province of Atacama may be crossed at numerous places at any period of the year, as the range there is generally free from snow.

Chili is subject to frequent earthquake shocks which, without causing damage, occasion much alarm lest they should be followed by the earthquake itself. The occurrence of this terrible phenomenon is not indicated by any particular state of the weather, but it rarely happens during the night. It is the common belief that when *shocks* are frequent there is not much fear of their being followed by an *earthquake*, and certainly experience justifies that opinion. Though shocks are very common, earthquakes are rare,—the same province being the focus of one only about once in fifty years, though it is calculated one in every tenth year makes itself felt in some part of Chili.

In the southern part of Chili there are several inland lakes abounding with fish and frequented by numerous varieties of aquatic birds. The largest of these lakes is that of Llanquihue, 197 feet above the level of the sea, at the base of the volcano of Osorno, which rises 7199 feet above its surface. Its shape is triangular, its greatest length from north to south being 30 miles and greatest breadth 22 miles. The little river Maullin is its sole outlet, and conveys its surplus water to the Pacific. In the neighborhood are the lakes Todos los Santos or Esmeralda, 18 miles long by 6 broad, and Rupancho, 24 miles long by 4 broad. Twelve miles northward is Lake Ranco, 32 miles long by 18 broad. In lat. 39° is Lake Villarica or Llauquen, measuring 100 square miles. In the province of Concepcion is Lake Guiletué measuring 50 square miles. Near Santiago, is Lake Aculeo, occupying about 8500 acres. In all these the water is fresh and pleasant to the taste; but in the small lakes situated near the coast, such as Bacalemu, Cahuil, Vichuquen, and Bolleruca the water is brackish.

The rivers, like the lakes, are much larger and more numerous in the south than in the north of Chili. They are almost entirely fed by the melting of the snow on the Andes, but are also liable to swelling from the winter rains. A few are navigable for a short distance; but nearly all yield immense service to agriculture by irrigation, carrying, like the Nile, both substance and moisture to the otherwise barren plains. The largest river is the Biobio, which, rising near the volcano of Antuco, in lat. $38^{\circ} 15'$, enters the Pacific after a course of 220 miles, where it is 2 miles broad. It is navigable for barges and small steamers as far as Nacimiento, 100 miles from the mouth.

Mineral waters are numerous in Chili; they are principally saline and sulphurous, containing carbonate of lime, bicarbonate of soda, and chloride of sodium. In temperature the waters range from 50° to that of boiling water.

The most important Chilean islands are those of the province of Chiloé, covered with great forests of the magnificent cedar *Fitzroya patagonica*, and the tall and elegant cypress *Libocedrus tetragona*. The interesting Island of Juan Fernandez may be included with those of Chili, although it is 360 miles from the coast. It is a mountainous and well-wooded island, 52 miles in circumference, and exhibits generally those features familiar to the readers of *Robinson Crusoe* as the abode of Alexander Selkirk. It is stocked with herds of goats, while the beach is a haunt of seals. Forty-two miles further out to sea is the smaller island of Mas Afuera.

Climate.—As Chili extends from hot, parched deserts in the Tropic of Capricorn to a boisterous, cold, and wet country within 12° of the Antarctic Circle, and as while one-fourth of the territory is not much above the level of the sea, another fourth lies slightly below the snow-line, the only general qualification that can be assigned to this union of extremes is that both in the high and the

low, the wet and the dry, the hot and the cold regions the climate is healthy throughout. Omitting the inhospitable regions of Cape Horn and Tierra del Fuego, and commencing with the most southern portion colonized by Chili, the Territory of Magellan, between lat. 54° and $51^{\circ} 50'$, we find that although the moisture and rainfall are too great for the ripening of wheat, yet potatoes, cabbage, celery, and carrots are readily grown. The principal town, Punta Arenas, is situated in the peninsula of New Brunswick, on the Straits of Magellan. The next zone, between lat. $51^{\circ} 50'$ and 37° , comprehends the provinces of Chiloé, Llanquihue, Valdivia, and Arauco, of which the climate is very like that of Great Britain,—the most southern parts having more rain but less cold than the Highlands of Scotland, while the more northern have a more genial climate than the most favored parts of the south of England. In Valdivia the mean temperature throughout the year is 52° Fahr. Timber is the great article of export; but potatoes, wheat, barley, rye, and flax are grown in quantities sufficient for exportation. The next zone extends from 37° to 28° lat., embracing the provinces from Concepcion to Aconcagua, where irrigation is more or less necessary, and where flax, corn, grapes, figs, olives, peaches, and melons grow freely, but oranges and lemons only in the northern portion. Rain falls in June, July, and August with more or less frequency, according to the latitude. During these months a mild northerly wind prevails, interrupted occasionally by a dry wind from the east. During all the rest of the year a wind blows from the south, which falls towards the evening. In Santiago the mean annual temperature is 55° Fahr. From lat. 28° to 24° , including the provinces of Coquimbo and Atacama, there is a gradually decreasing amount of moisture,—from four to five showers of from five to ten hours, as in Coquimbo, to nothing but an occasional mist, as in Atacama. Spring commences in September, summer in December, autumn in March, and winter in June.

The census of September, 1889, was notoriously imperfect, and gave only 2,665,926; but 10 per cent. may be allowed for omissions, and 44,000 for wandering Araucanian and Patagonian tribes, which brings up the total number to over 3,000,000. One-third of the population is urban, and two-thirds rural.

The name Chili (or, in its Spanish form, Chile) is supposed to be derived from Tchile, a word belonging to the ancient language of Peru, signifying "snow." The country first became known to Europeans in the 16th century. It was then, to a considerable extent, under the dominion of the Incas, but had been previously inhabited by certain tribes of Indians, of whom the most important and only warlike race were the Araucanians.

In the time of the Inca Yupanqui (1433), grandfather of the monarch who occupied the throne of Peru on the arrival of the Spaniards, and the tenth in succession from Manco Capac, the reputed founder of the Peruvian empire, the first attempt was made by the Incas to extend their dominion over the territory of Chili. Yupanqui, leading his army across the desert of Atacama, and penetrating into the southern regions of the country, made himself master of a considerable portion of it. The permanent boundary of the dominions of this prince is said by some writers to have been determined by the River Maule, $35^{\circ} 30'$ S. lat., although it is more probable the River Rapel, $34^{\circ} 10'$ S. lat., constituted the extreme limits of the Peruvian empire towards the south. The latter opinion is to some extent supported by the fact, that the remains of an ancient Peruvian fortress, apparently marking the frontier, are still found upon the banks of the Rapel, while no such remains are known to exist in any part of the country farther south.

The Peruvian dominion in Chili ceased with the Inca Atahualpa in 1533. The first Spanish invasion was led by Diego de Almagro (1535 or 1536), who however met with such determined resistance from the Araucanians that he was compelled to retrace his steps. Undaunted by this failure, Pizarro despatched another expedition, composed of Spanish troops and Peruvian auxiliaries, under Don Pedro de Valdivia, and was preparing to follow it in person with a larger force, when he was assassinated in 1541. Meanwhile Valdivia entered Chili, and fighting his way onward, encamped on the banks of the Mapocho, where he founded the city of Santiago, the present capital of the republic, and about eleven years afterwards the town of Valdivia. At last, after twelve years' stay in Chili his life and conquests were brought to an end in a desperate engagement with the Araucanians, who for 180 years afterwards continued to wage a sanguinary war with the Spaniards, till 1722, when they consented to a treaty which fixed the River Biobio as the boundary between them. Spanish Chili, extending from the Biobio northward to Atacama, was divided into thirteen provinces, under the rule of a governor appointed by the viceroy of Peru. The last of these governors was Mateo de Toro, 1810.

During the entire period of this connection between Spain and Chili, the viceroys, governors, and all the other Spanish officials of every grade regarded the inhabitants only as a means of furthering their own aggrandizement, which at length so exasperated the better educated classes that they determined to throw off the hateful yoke on the first favorable occasion. In 1810 this desired opportunity at last presented itself, when Spain, overrun by the armies of France, was no longer able to vindicate her own claims to a national existence. In July of that year the Chilians took the first step towards asserting their independence by deposing the Spanish president, and putting in his place (September 18, 1810,) a committee of seven men, nominated by themselves, to whom were entrusted all the executive powers. In April, 1811, the first blood was spilt in the cause of Chilean independence. A battalion of royal troops, which had been drawn up in the great square of Santiago, was attacked by a detachment of patriot grenadiers, and routed with considerable loss on both sides. In the same year (December 20) the government was vested in a triumvirate, and Juan José Carrera was appointed general-in-chief of the army about to be formed.

In 1813 a powerful army, under the command of General Paroja, invaded Chili, but was twice defeated by the republican troops under Carrera. The royalists, however, speedily received large reinforcements; and after a severe contest, Chili was once more obliged to own the sovereignty of Spain. For three years more the people submitted (under the Spanish governors Osorio and Pont) to the old system of tyranny and misgovernment, till at length the patriot refugees, having levied an army in La Plata, and received the support of Buenos Ayreans, marched against the Spaniards, and completely defeated them at Chacabuco in 1817.

The patriots next proceeded to organize an elective government, of which San Martin, the general of the army, was nominated the supreme director. Their arrangements, however, were not completed when they were attacked once more by the royalists, and routed at the battle of Cancharayada with great loss. Betrayed into a fatal security by this success, the royalist troops neglected the most ordinary military precautions, and being suddenly attacked by the patriots in the plains of Maipu, were defeated with great slaughter. This victory secured the independence of Chili.

The new Republic had no sooner obtained for itself a place among the nations of South America, than it resolved to assist the neighboring state of Peru in achieving a similar independence, which object was at last effected after a bloody war of six years' duration. No small share of this success was due to the daring courage and consummate ability with which Lord Cochrane, under the most trying circumstances, conducted the naval affairs. In acknowledgment of these important services a well-executed statue of him has been erected in Valparaiso. With 1817 commenced again the national government, under the directorship of General O'Higgins, who held it till 1823, when he was compelled to resign in consequence of a popular tumult. For a few weeks, a provincial triumvirate discharged the duties of an executive government. General Freire was next chosen director. During the period of three years in which he held the reins of government, the country was harassed by constant dissensions; and for the four years subsequent to his resignation it continued in a state of disorder bordering upon anarchy. From 1826 to 1830 the government was administered by six different directors, in addition to a second provincial triumvirate. In 1828, under the administration of General Pinto, a constitution was promulgated, which had the effect of temporarily reconciling political differences and calming party spirit. In 1831, however, when General Prieto was raised to the chief magistracy, a convention was called for the purpose of revising this constitution. The result of its deliberations was the new constitution of Chili, which was promulgated on May 25, 1833. After holding office for ten years Prieto retired, and was succeeded by General Bulnes, a distinguished officer of the war of independence. Like his predecessor, he was fortunate in finding in Manuel Montt an able and intelligent prime minister, who was to him what Portales was to Prieto. In 1851 an insurrectionary movement broke out, headed by General Urriola, who, during the disturbances in Santiago in the Semana Santa, was accidentally killed. The same party then brought forward as their candidate for the presidency General José Maria de la Cruz in opposition to D. Manuel Montt, but the latter was elected, and continued in office for two periods (1851-1861). To him succeeded José Joaquin Perez (1861-1871), who in 1871 was followed by Federico Errazuriz, and he in his turn by Anibal Pinto in 1876.

In 1864 Chili gave Peru very valuable support in her war with Spain. Valparaiso was bombarded by the Spaniards in 1866. In 1879 Chili declared war against Bolivia, and immediately thereafter against Peru, with which Bolivia was allied. For a time the Peruvian fleet kept the Chilians in check, but in August, 1879, the Peruvian ironclad "Huascar" was captured by the Chilean men-of-war "Cochrane" and "Blanco Encalada," both armor-plated. After this event the success of the Chilians was uninterrupted. Peruvian towns were bombarded and their other war-ships captured. Finally Lima was taken by storm on June 21, 1881. The Chilians occupied Lima and Callao until October 30, 1883, when a treaty of peace was signed. By this a portion of Peruvian territory was ceded to Chili. On September 18, 1886, José Manuel Balmaceda was inaugurated as President. Toward the end of his term of five years he became involved in a contest with the National Congress, which culminated in civil war. Balmaceda held Valparaiso, the chief port, and Santiago, the capital, while the congressional party had command of the fleet and succeeded in raising a large army. In the summer of 1891 a congressionalist vessel, the "Itata," attempted to take arms on board at San Francisco and was seized by

the United States for a breach of the neutrality laws. She escaped, but was afterward surrendered to the United States. Meantime matters had been going from bad to worse in Chili and finally Balmaceda was overthrown, after a pitched battle had been fought at Valparaiso. The ex-President committed suicide and a junta or provisional government was formed. The feeling against the United States was intense, and in October, 1891, a number of the crew of the American man-of-war "Baltimore," who were spending their leave in Valparaiso were attacked by a mob, and several of them killed. The others were imprisoned and subjected to ill-treatment, and at this writing (November, 1891,) the friction between the United States and Chili is great. On November 4, 1891, Admiral Jorge Montt was elected Constitutional President of the Republic, and was peaceably inaugurated.

The greater part of Chili, when Almagro invaded it, was inhabited by the *Araucanians*, who were, with other Indians, partly exterminated, but more generally absorbed into the Chilian nationality as at present existing. A remnant of independent Araucanians still occupy a province south of the Biobio; but they scarcely number 24,000, and are on the decrease. These Araucanians are divided into tribes, whose chief, called a cacique, has from two to six wives, or even more, according to his means of supporting them and their progeny. They cultivate maize, rear herds of horses, sheep and cattle, weave coarse woollens, and build comfortable cottages, binding the beams together with the indigenous plants of the country.

The Patagonians, who inhabit the territory of Magellan and Tierra del Fuego, and who may number about 20,000, are not given to polygamy. They worship one god called Coche, and believe in the immortality of the soul. The average height of fifty Patagonians taken at random lately was found to be 6 feet, $4\frac{3}{8}$ inches. The tallest was 6 feet, $8\frac{1}{2}$ inches, and the least 6 feet, $\frac{1}{8}$ inch. The *Chilians* themselves hold the same position to Spain as the inhabitants of the United States do towards England. Their instincts and language are Spanish, modified by admixture and intercourse with other nations. The North American colonists have been chiefly instrumental in the construction of flour-mills, telegraphs, and railways. At the commercial centres, such as Valparaiso, Concepcion, Copiapo, Coquimbo, and Huasco, many of the leading Chilian citizens are of English, French, and German descent. There are in the country about 35,000 Europeans, chiefly Germans, French, and English.

By the constitution adopted on the 25th of May, 1833, the sovereignty is declared to reside in the people; but the exercise of its functions is delegated to three distinct powers—the legislative, the executive, and the judicial. The legislative power is committed to the National Congress, which consists of the Chambers of Deputies and Senators. The Chamber of Deputies comprises over 100 members, elected for a term of three years, on the principle of equal electoral districts with cumulative voting, and by a suffrage enjoyed by all citizens who are of twenty-one years of age if married, or twenty-five if unmarried, and who are able to read and write, and pay yearly taxes to a certain amount.

The senate is composed of fewer members, chosen by indirect election in each province for a term of nine years. One third of the house is renewed every three years.

The Chamber of Deputies and the Senate have concurrent as well as separate functions. The former body alone can impeach the higher officers of the state before the Senate. It originates all money bills and measures relating to the military force of the country. The

Senate alone has the right of pronouncing judgment on public functionaries impeached by the Chamber of Deputies; it confirms ecclesiastical nominations, and in certain cases gives or withholds its consent to the Acts of the executive. In all other proceedings of the legislature the concurrent voice of the two houses is necessary. Laws may originate with either body, but require to be passed by both houses, sanctioned by the president (after consultation with the Council of State), and promulgated by the minister to whose department the matter relates. The period during which the Congress sits is limited to the three winter months; but the session may be prolonged by the president for fifty days. On the day before the regular session closes, the senators elect seven of their number to form the conservative committee, which replaces Congress during its prorogation in the duty of observing the conduct of the executive.

The executive power is committed to the president, with a salary of \$18,000, as supreme chief of the nation. He is chosen by indirect election, and holds office for a term of five years, after the expiry of which he is not eligible for reelection until another five years have elapsed. The president concludes treaties, and declares peace or war; he appoints and removes ministers, councillors, and clerks of department, as well as diplomatic representatives, consuls, and the administrative officers of provinces. He also inducts the higher legal and judicial functionaries; but the nomination of these officers, as well as of ecclesiastical dignitaries, must proceed from the Council of State. He distributes the army and navy at will; and when, with the sanction of the Senate, he assumes the command of the national troops in person, he has the exclusive bestowal of naval and military commissions, though ordinarily appointments of this nature must be approved by the Senate.

The president is liable to impeachment for mal-administration for a year after the expiry of his authority. During that time he is not allowed to leave the country, except with the permission of Congress. All the other officers of Government are subject to the same law; but in their case the time is more limited.

The Council of State is composed of ministers in the exercise of their functions, a member of the courts of justice, an ecclesiastical dignitary, a general or admiral, a chief of the administration of finances, and one ex-minister or diplomatic agent,—all named by the president, together with six other councillors, named one-half by the Senate and one-half by the Chamber of Deputies. The duties of the Council of State are to advise and act as a check upon the president.

The Government is conducted by five cabinet ministers, each with a salary of \$6,000. The Ministro del Interior presides over the preparation of the national statistics, over roads and railroads, public buildings, and hospitals; the Ministro de Hacienda over the finance; the Ministro de Justicia, Culto, é Instruccion over the law and prisons, the church, and education; the Ministro de Guerra over the army and navy; and the Ministro del Exterior over foreign affairs and colonization. The president has no power of enforcing obedience to orders relating to any one of these departments until they have been confirmed by the minister in charge. The ministers are entitled to take part in all the debates of Congress; but, unless holding at the same time the office of senator or of deputy, they are not allowed to vote. Any of them may be impeached by the Chamber of Deputies for treason against the laws of the state, or for the mal-administration of the duties of his office. An action may be brought against them even by private individuals who have suffered by any of their acts if the Senate, to whom appeal must in the first place be made, decide that there is sufficient ground for complaint.

Upon the executive depend directly the administrative officials throughout the country. For administrative purposes **Chili is divided into twenty-one provinces, each with subordinate departments, subdelegations, and districts, and three territories, viz., the provinces of Atacama, Coquimbo, Valparaiso, Aconcagua, Santiago, Colchagua, Curicó, Talca, Maule, Nuble, Concepcion, Arauco, Valdivia, Llanquihue, and Chiloé, and the settlement of Magellan.** The capital is Santiago, on the Mapocho. Each of the provinces is governed by an intendant, who is nominated by the president, and holds office for three years. The departments are under governors, who hold office for a similar term. The intendant generally acts as governor in that department in which the capital of the province is situated, and is, at the same time, mayor of the municipal corporation; but the authority of this body is very limited, as it cannot dispose even of its local funds without the permission of Government. The subdelegates are appointed by the governors for a period of two years, as are also the inspectors of districts. Both these offices are compulsory,—those who decline to serve being liable to fines.

The united revenue of the municipal corporations of Chili amounts to about \$2,500,000, of which about \$400,000 is contributed by the state, and the remainder derived from local sources.

The procedure of the Chilian courts of justice is based on the same fundamental principles as those which hold among the Latin nations generally, and approximates therefore to that of equity. Evidence is mostly taken by depositions in writing. The suitor appears by a sworn procurator or attorney, who must be conversant with the technicalities of the law. In the higher courts, the aid of an advocate is further obligatory. The advocate, who combines the functions of the consulting lawyer with those of the barrister, is only admitted to practice after taking a university degree, and passing an examination by the Supreme Court. Trial by jury is unknown, except as applied in a modified form to libel cases connected with the press. The whole law of Chili is being gradually digested into codes,—the civil, penal, commercial, &c.

The supreme court, which sits at Santiago, takes cognizance of criminal and civil causes alike. Its decisions are final, and also bind the Government upon questions of law submitted for the consideration of the bench. There are three courts of intermediate appeal, sitting in Santiago, Serena, and Concepcion, which also have both criminal and civil jurisdiction, and whose decisions are final in certain cases.

In each department of every province there are one or more salaried judges of letters (or judges learned in the law), who divide among them the local jurisdiction,—the criminal and civil sides being, in places of importance, vested in different judges, each of whom, as a rule, sits alone. Below these, again, are the judges of subdelegations and of districts, of whom the latter can only **decide civil cases when the value at issue is below \$50, and in criminal causes can arrest the criminal and prepare evidence; while the former decide civil suits up to \$200 value, hear appeals from the district judge, and take cognizance of minor criminal offenses.**

In places where access to a judge of letters is difficult, an alcalde or local police magistrate retains a limited jurisdiction. With a view to reduce litigation, the law expressly encourages reference to arbitration in various forms; and the duties of public prosecutor and public advocate are performed by officials, who intervene before the higher courts and the judges of letters in all cases which involve public morality, or the interests of the state, of minors, of the incapable, or the absent, and of charitable trusts.

Military and ecclesiastical offences come under the cognizance of special tribunals, but neither ecclesiastical nor military persons are, as such, exempt from the jurisdiction of the ordinary tribunals in respect of offences against the law of the land. Certain special jurisdiction is reserved to the Council of State and to the revenue courts; and under a treaty with Great Britain, guaranteeing the mutual right of search in suspected slave vessels, a mixed tribunal decides, without appeal, as to the validity of capture.

Chili has 1,750 miles of railroad and 11,000 miles of telegraph in operation, and 600 miles of additional railroad are being built by the government. The commercial marine numbers 179 vessels of 78,716 tons. The public revenue amounted in 1889 to \$46,000,000; the expenditures to \$41,500,000, the foreign public debt to \$64,000,000, and the internal debt to \$116,000,000. The imports, including bullion, were valued at \$56,000,000, and the exports at \$62,000,000.

The form of worship recognized by the constitution is the Roman Catholic, yet Government tolerates the public profession of others.

The first educational establishments in rank are the University and the National Institute of Santiago. The university, which grants degrees in law and medicine, has 37 professors, besides numerous assistants, and is attended by nearly 700 students. It is governed by a rector and a vice-rector, a secretary, and the five deacons of the faculties of humanity, mathematics, medicine, law, and theology, who are also charged with the inspection of education in all schools throughout the republic. Whoever has the necessary elementary knowledge may attend the classes without paying fees.

The army of Chili, which in time of war has exceeded 4500 men, was reduced in 1875 to 3500, consisting of 700 cavalry, 2,000 infantry, and 800 artillery. In 1888 the army consisted of 56,000 men and 960 officers, having been greatly increased since the war with Peru and the extension of territory.

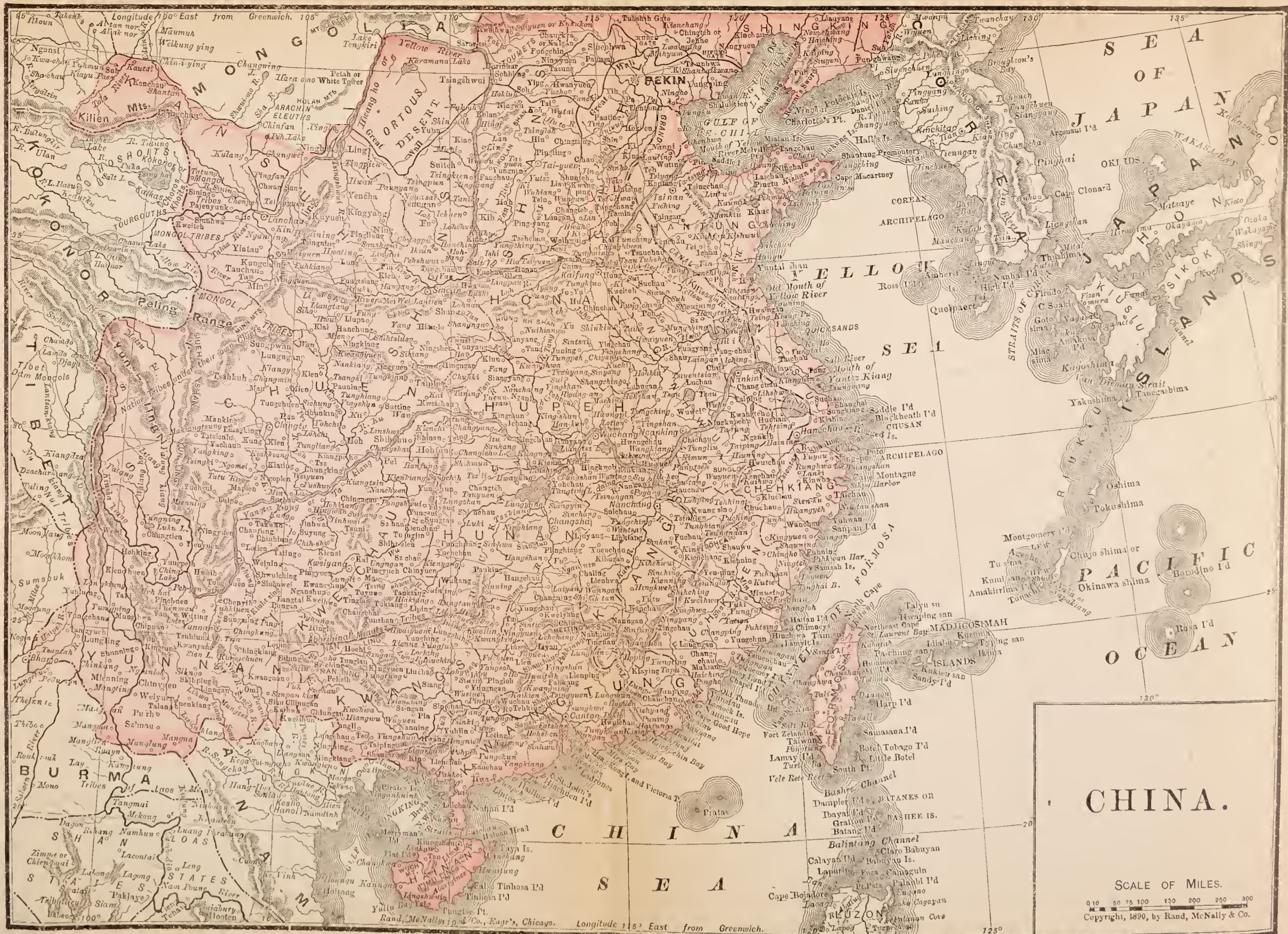
The National Guard, also divided into cavalry, infantry, and artillery, averaged 55,000 men from 1867 to 1871, but in 1875 had become reduced to 22,000, the country being at peace.

The navy consists of two powerful ironclads, the "Almirante Cochrane" and the "Valparaiso," constructed in England, each of 1000 horse-power, and of about 2000 metric tons measurement, besides three corvettes, a sloop, and several transport vessels on active service, and two corvettes allocated to the naval schools. All are steamers. The marine force amounted in 1888 to 2,160 men, including sailors, engineers, officers, and 200 marines and artillerymen.

Within the past two years several additions have been made to the navy by the congressional party, and among the new vessels are a powerful iron-clad, the "Esmeralda," and a number of torpedo gunboats.

Chili is rich in minerals. Among its metals are gold, silver, copper, lead, antimony, cobalt, zinc, nickel, bismuth, iron, molybdenum, and quicksilver, found in mines in the northern division, while rich beds of coal occupy the southern division, but only copper, silver, and coal are profitable to any extent. The various ores are found in all the series of rocks between granite and trachyte, the latter being sterile in Chili. The veins generally run from N. and N.W. to S. and S.E.; in some places, however, their course is irregular, or they extend E. and W.

CHILLAN, a town of Chili, the capital of the province of Nuble, in a depression in the fertile plain between the Rivers Nuble and Chillan, about 120 miles north-east of Concepcion. The district is celebrated for its mineral baths. Chillan was originally founded



by Ruiz de Gamboa in 1594, but it has since been frequently destroyed and rebuilt. In 1601 it was laid waste by the Moluche Indians, in 1657 by the Puelche Indians and an earthquake, by another earthquake in 1751, and in 1797 by the overflow of the River Nuble. This last catastrophe led the inhabitants to remove their city to a place called La Horca, where it was again levelled by the earthquake of 1835. Next year they began to build on the present site the now prosperous town, which has a population of 20,000.

CHILLIANWALLA, a town of British India in the Punjab, situated on the left bank of the River Jhelum, about 85 miles north-west of Lahore. It is memorable as the scene of a sanguinary battle fought there on the 13th January, 1849, between a British force commanded by Lord Gough and the Sikh army under Shere Singh. The loss of the British in killed and wounded amounted to 2269, of whom nearly 1000 were Europeans, while that of the Sikhs was estimated at 4000. An obelisk erected at Chillianwalla by the British Government preserves the names of the officers and men who fell in the action.

CHILLICOTHE, the county seat of Livingston county, Mo., is situated near Grand River, 76 miles east of St. Joseph, and is an important railroad and manufacturing town, with a population of 11,288. It contains two national and two savings banks, three newspaper offices, an academy, a convent, and ten churches. The industries include flour and planing mills and machine shops. Coal is mined in the vicinity.

CHILLICOTHE, the capital of the county of Ross, in Ohio, on the west bank of the River Scioto, forty-five miles south of Columbus. It is beautifully situated in the midst of a rich agricultural district, and has extensive communication by means of the Ohio and Erie canal, and several railway lines. Its public buildings comprise a large court-house, which cost over \$100,000, fourteen churches, and thirty-six public schools; and among its industrial establishments are carriage-factories, flour and paper mills, an iron foundry, and a manufactory of agricultural implements. Chillicothe was founded in 1796, and from 1800 to 1810 it was the capital of the State. Population, 1889, about 13,000.

CHILLINGWORTH, WILLIAM (1602-1644), a celebrated divine and controversialist of the Church of England, was born at Oxford in October, 1602.

CHILLON, a celebrated castle and fortress of Switzerland, in the Canton of Vaud, six miles southeast of Vevey. It is situated at the east end of the Lake of Geneva, on an isolated rock, almost entirely surrounded by deep water, and is connected with the shore by a wooden bridge. The castle is said to have been built in 1238, by Amadeus IV. of Savoy, and it long served as a state-prison. It is famous as the prison of Bonivard.

CHILMARÉE (in Hindustani, *Chalamari*), a town of British India, in the presidency of Bengal, about thirty-five miles southeast of Rungpur, on the right bank of Brahmaputra. It is mainly remarkable as the seat of a great religious and commercial festival, which brings together no fewer than from 60,000 to 100,000 people.

CHILOE, an island off the coast of Chili, separated from the mainland on the north by the narrow strait of Chaco, and on the east by the archipelago of the Gulf of Ancud and Corcovado bay. It extends in length about 120 miles from north to south, its greatest breadth is about fifty miles, and its total area is estimated at 5,200 square miles. The western or seaward coast is for the most part steep, and in some places rises to a height of 3,000 feet; the eastern contrasts with it not only in its smaller elevation but also in the extreme irregularity of

its outline. There are several lakes in the southern portion of the island, of which the most extensive bears the name of Lago de Cucao. The interior is mountainous and but partially explored. The whole island is divided into the five departments of Ancud or San Carlos, Chaco, Dalcabue, Castro, and Chonchi. Ancud, the capital and bishop's seat, is a regularly-built town, with a population of 7,000. The total population of the province amounted in 1889 to 68,000.

CHILON, one of the seven sages of Greece, was a Lacedæmonian by birth. His father's name was Damagetos, and he appears to have flourished about the beginning of the sixth century B.C. In 556 B.C. he acted as ephor eponymous, but little more is known of his life. He is said to have died of joy on hearing that his son had gained a prize at the Olympic games.

CHILTERN HILLS, a range of chalk hills in England, extending through part of Oxford, Buckingham, and Bedford, and attaining their highest elevation of 904 feet in the neighborhood of Wendover. At one time the Chilterns were thickly covered with a forest of beech, and the western district of Bernwood was only cleared by James I.

CHIMÆRA, in Grecian fable, a monster resembling a lion on the fore part, a goat in the middle, and a dragon behind, and having three heads corresponding to the three parts of her body. Each mouth breathed forth fire, and she committed great ravages throughout Caria and Lycia, till she was overthrown by Bellerophon, mounted on the winged horse Pegasus.

CHIMAY, a town of Belgium, in the province of Hainault, on the Eaublance, or White Water, about twenty-eight miles south of Charleroi. It contains 3,000 inhabitants, and has ironworks, marble quarries, breweries, and potteries.

CHIMES, music performed on bells in a church tower, either by the hands of a performer or by mechanism.

CHIMNEY (Fr. *cheminee*, Lat. *caminus*). There seems reason to believe that the chimney in its present sense of a funnel from the hearth or fireplace to the roof of the house, is a modern invention. In Greek houses it is supposed that there were no chimneys, and that the smoke escaped through a hole in the roof. In England there is no evidence of the use of chimney-shafts earlier than the twelfth century. The action of a chimney depends upon the simple principle, that a column of heated air is lighter than a cooler column of equal height; when, therefore, a flue full of heated air communicates freely by the lower part with the cooler air around it, the greater weight of the latter pushes the warm air upward, and thus an ascending current is produced.

CHIMPANZEE. See APE.

CHINA.—The spacious seat of ancient civilization which we call China has loomed always so large to western eyes, and has, in spite of the distance, subtended so large an angle of vision, that, at eras far apart, we find it to have been distinguished by different appellations, according as it was reached by the southern sea-route, or by the northern land route traversing the longitude of Asia.

In the former aspect the name has nearly always been some form of the name *Sin*, *Chin*, *Sinæ*, *China*. In the latter point of view the region in question was known to the ancients as the land of the *Seres*, to the Middle Ages as the empire of *Cathay*.

The name of *Chin* has been supposed (doubtfully) to be derived from the dynasty of *Thsin*, which a little more than two centuries before our era enjoyed a brief but very vigorous existence, uniting all the Chinese provinces under its authority, and extending its con-

quests far beyond those limits to the south and the west.

The mention of the *Chinas* in ancient Sanskrit literature, both in the laws of Manu and in the Mahâbhârat, has often been supposed to prove the application of the name long before the predominance of the Tsin dynasty. But the coupling of that name with the *Daradas*, still surviving as the people of Dardistan, on the Indus, suggests it as more probable that those *Chinas* were a kindred race of mountaineers, whose name as *Shinas* in fact likewise remains applied to a branch of the Dard races. Whether the *Sinim* of the prophet Isaiah should be interpreted as the Chinese is probably not at present susceptible of any decision; by the context it appears certainly to indicate a people of the extreme east or south.

The name probably came to Europe through the Arabs, who made the *China* of the further east into *Sin*, and perhaps sometimes into *Thin*. Hence the *Thin* of the author of the *Periplus of the Erythræan Sea*, who appears to be the first extant writer to employ the name in this form; hence also the *Sinæ* and *Thinæ* of Claudius Ptolemy.

It has often indeed been denied that the *Sinæ* of Ptolemy really represented the Chinese. But if we compare the statement of Marcianus of Heraclea (a mere condenser of Ptolemy), when he tells us that the "nations of the *Sinæ* lie at the extremity of the habitable world, and adjoin the eastern Terra Incognita," with that of Cosmas, who says, in speaking of *Tzinista*, a name of which no one can question the application to China, that "beyond this there is neither habitation nor navigation," — we cannot doubt the same region to be meant by both. The fundamental error of Ptolemy's conception of the Indian Sea as a closed basin rendered it impossible but that he should misplace the Chinese coast. But considering that the name of *Sin* has come down among the Arabs from time immemorial as applied to the Chinese, considering that in the work of Ptolemy this name certainly represented the furthest known East, and considering how inaccurate are Ptolemy's configurations and longitudes much nearer home, it seems almost as reasonable to deny the identity of his India with ours as to deny that his *Sinæ* were Chinese.

If we now turn to the *Seres* we find this name mentioned by classic authors much more frequently and at an earlier date; for the passages of Eratosthenes (in Strabo), formerly supposed to speak of a parallel passing through *Thinæ* — are now known to read correctly *δὲ Ἀθηνῶν*. The name *Seres* indeed is familiar to the Latin poets of the Augustan age, but always in a vague way, and usually with a general reference to Central Asia and the further East. We find, however, that the first endeavors to assign more accurately the position of this people, which are those of Mela and Pliny, gravitate distinctly towards China in its northern aspect as the true idea involved. Thus Mela describes the remotest east of Asia as occupied by the three races (proceeding from south to north), Indians, Seres, and Scyths; just as in a general way we might say still that Eastern Asia is occupied by the Indies, China, and Tartary.

Ptolemy first uses the names of *Sera* and *Serice*, the former for the chief city, the latter for the country of the Seres, and as usual defines their position with a precision far beyond what his knowledge justified, — the necessary result of his system. Yet even his definition of *Serice* is most consistent with the view that this name indicated the Chinese empire in its northern aspect, for he carries it eastward to the 180th degree of longitude, which is also, according to his calculation, in a lower latitude the eastern boundary of the *Sinæ*.

Ammianus Marcellinus devotes some paragraphs to a description of the Seres and their country, one passage

of which is startling at first sight in its seeming allusion to the Great Wall, and in this sense it has been rashly interpreted by Lassen and by Reinaud. But Ammianus is merely converting Ptolemy's dry tables into fine writing, and speaks only of an encircling rampart of mountains within which the spacious and happy valley of the Seres lies. It is true that Ptolemy makes his *Serice* westward to Imaus, *i.e.*, to Pamir. But the Chinese empire *did* so extend at that epoch, as it did twenty years ago, and we find Lieut. John Wood in 1838 speaking of "*China*" as lying immediately beyond Pamir, just as the Arabs of the 8th century spoke of the country beyond the Jaxartes as "*Sin*," and as Ptolemy spoke of "*Serice*" as immediately beyond Imaus.

If we fuse into one the ancient notices of the Seres and their country, omitting anomalous statements and manifest fables, the result will be something like the following: — "The region of the Seres is a vast and populous country, touching on the east the Ocean and the limits of the habitable world, and extending west to Imaus and the confines of Bactria. The people are civilized, mild, just, and frugal, eschewing collisions with their neighbors, and even shy of close intercourse, but not averse to dispose of their own products, of which raw silk is the staple, but which include also silk-stuffs, fine furs, and iron of remarkable quality." That is manifestly a definition of the Chinese.

That Greek and Roman knowledge of the true position of so remote a nation should at best have been somewhat hazy is nothing wonderful. And it is worthy of note that the view entertained by the ancient Chinese of the Roman empire and its inhabitants, under the name of *Ta-thsin*, had some striking points of analogy to those views of the Chinese which are indicated in the classical descriptions of the Seres. There can be no mistaking the fact that in this case also the great object was within the horizon of vision, yet the details ascribed to it are often far from being true characteristics, being only the accidents of its outer borders.

CATHAY is the name by which the Chinese empire was known to mediæval Europe, and is in its original form (*Kitai*) that by which China is still known in Russia, and to most of the nations of Central Asia. West of Russia the name has long ceased to be a geographical expression, but it is associated with a remarkable phase in the history of geography and commerce, of which we purpose under this head to give some account.

The name first became known to Europe in the 13th century, when the vast conquests of Jenghiz and his house drew a new and vivid attention to Asia. For some three centuries previously the northern provinces of China had been detached from indigenous rule, and subject to northern conquerors. The first of these foreign dynasties was of a race called *Khitan*, issuing from the basin of the Sungari river, and supposed (but doubtfully) to have been of the blood of the modern Tunguses. The rule of this race endured for two centuries, and originated the application of the name *Khitât* or *Khitâi* to Northern China. The dynasty itself, known in Chinese history as *Liao*, or "Iron," disappeared from China 1123, but the name remained attached to the territory which they had ruled.

The *Khitan* were displaced by the *Nyûché* or *Chûrche* race, akin to the modern Manchus who now rule China. These reigned, under the title of *Kin*, or "Golden," till Jenghiz and his Mongols invaded them in turn. In 1234 the conquest of the *Kin* empire was completed, and the dynasty extinguished under Okkodai, the son and successor of Jenghiz Khân. Forty years later in the reign of Kublaï, grandson and ablest successor of Jenghiz, the Mongol rule was extended over Southern China (1276), which till then had remained under a native dynasty, the

Sung, holding its royal residence in a vast and splendid city, now known as Hang-chow, but then as Ling-ngan, or more commonly as *King-sze*, *i.e.*, the Court. The southern empire was usually called by the conquerors *Mantzi* (or, as some of the old travelers write, *Mangi*), a name which Western Asiatics seem to have identified with *Māchīn* (from the Sanskrit *Mahāchīn*), one of the names by which China was known to the traders from Persian and Arabian ports.

The conquests of Jenghiz and his successors had spread not only over China and the adjoining East, but westward also over all Northern Asia, Persia, Armenia, part of Asia Minor, and Russia, threatening to deluge Christendom. Though the Mongol wave retired, as it seemed almost by an immediate act of Providence, when Europe lay at its feet, it had levelled or covered all political barriers from the frontier of Poland to the Yellow Sea, and when Western Europe recovered from its alarm, Asia lay open, as never before or since, to the inspection of Christendom. Princes, envoys, priests,—half-missionary half-envoy—visited the court of the great Khān in Mongolia; and besides these, the accidents of war, commerce, or opportunity carried a variety of persons from various classes of human life into the depths of Asia. Among the many strangers who reached Mongolia were (1245-47) John de Plano Carpini (see CARPINI) and (1253) William of Rubruk (Rubruquis) in French Flanders, both Franciscan friars of high intelligence, who happily have left behind them reports of their observations.

Carpini, after mentioning the wars of Jenghiz against the *Kitai*, goes on to speak of that people as follows:—"Now these *Kitai* are heathen men, and have a written character of their own. . . . They seem, indeed, to be kindly and polished folks enough. They have no beard, and in character of countenance have a considerable resemblance to the Mongols" [are *Mongoloid*, as our ethnologists would say], "but are not so broad in the face. They have a peculiar language. Their betters as craftsmen in every art practiced by man are not to be found in the whole world. Their country is very rich in corn, in wine, in gold and silver, in silk, and in every kind of produce tending to the support of mankind." The notice of Rubruk, shrewder and more graphic, runs thus:—"Further on is great Cathay, which I take to be the country which was anciently called the Land of the Seres. For the best silk stuffs are still got from them. . . . The sea lies between it and India. Those Cathayans are little fellows, speaking much through the nose, and, as in general with all those Eastern people, their eyes are very narrow. They are first-rate artists in every kind, and their physicians have a thorough knowledge of the virtues of herbs, and an admirable skill in diagnosis by the pulse. . . . The common money of Cathay consists of pieces of cotton-paper, about a palm in length and breadth, upon which certain lines are printed, resembling the seal of Mangu Khān. They do their writing with a pencil, such as painters paint with, and a single character of theirs comprehends several letters, so as to form a whole word." Here we have not only what is probably the first European notice of paper-money, but a *partial* recognition of the peculiarity of Chinese writing, and a perception that puts to shame the perverse boggling of later critics over the identity of these Cathayans with the Seres of classic fame.

But though these travelers saw Cathayans in the bazaars of the Great Khan's camps, the first actual visitors of Cathay itself were the Polo family (see POLO, MARCO), and it is to the book of Marco's recollections mainly that Cathay owed the growing familiarity of its name in Europe during the 14th and 15th centuries. It

is, however, a great mistake to suppose, as has often been assumed, that the residence of the Polos in that country remained an isolated fact. They were but the pioneers of a very considerable intercourse, which endured till the decay of the Mongol dynasty in Cathay, *i.e.*, for about half a century.

We have no evidence that either in the 13th or 14th century Cathayans, *i.e.*, Chinese ever reached Europe, but it is possible that some did, at least, in the former century. For, during the campaigns of Hulaku in Persia (1256-1265), and the reigns of his successors, Chinese engineers were employed on the banks of the Tigris, and Chinese astrologers and physicians could be consulted at Tabriz. Many diplomatic communications passed between the Hulakuid Ilkhans and the princes of Christendom. The former, as the great Khan's liegemen, still received from him their seals of state; and two of their letters which survive in the archives of France exhibit the vermilion impressions of those seals in Chinese characters,—perhaps affording the earliest specimen of that character which reached Western Europe.

Just as the Polos were reaching their native city (1295), after an absence of a quarter of a century, the forerunner of a new series of travellers was entering Southern China by way of the Indian seas. This was John of Monte Corvino, another Franciscan, who, already some fifty years of age, was plunging single-handed into that great ocean of Paganism to preach the gospel according to his lights. After years of uphill and solitary toil converts began to multiply; coadjutors joined him. The Papal See became cognizant of the harvest that was being reaped in the far East. It made Friar John Archbishop in Cambaluc (or Peking), with Patriarchal authority, and sent him batches of suffragan bishops and preachers of his own order. The Roman Church spread; churches and Minorite houses were established at Cambaluc, at Zayton or Tswan-chow in Fuh-keen, at Yang-chow, and elsewhere; and the missions flourished under the smile of the Great Khan, as the Jesuit missions did for a time under the Manchu emperors three centuries and a half later. Archbishop John was followed to the grave, about 1328, by mourning multitudes of Pagans and Christians alike. Several of the bishops and friars who served under him have left letters or other memoranda of their experience *e.g.*, Andrew, bishop of Zayton, John of Cora, afterwards archbishop of Sultania in Persia, and Odoric of Pordenone, whose fame as a pious traveller won from the *vox populi* at his funeral a beatification which the church was fain to seal. The only ecclesiastical narrative regarding Cathay, of which we are aware, subsequent to the time of Archbishop John, is that which has been gathered from the recollections of John de' Marignolli, a Florentine Franciscan, who was sent by Pope Benedict XII. with a mission to the Great Khan, in return for one from that potentate which arrived at Avignon from Cathay in 1338, and who spent four years (1342-46) at the court of Cambaluc as legate of the Holy See. These recollections are found in a singular position, dispersed incoherently over a chronicle of Bohemia which the traveller wrote by order of the emperor Charles IV., whose chaplain he was after his return.

But intercourse during the period in question was not confined to ecclesiastical channels. Commerce also grew up, and flourished for a time even along the vast line that stretches from Genoa and Florence to the marts of Chē-keang and Fuh-keen. The record is very fragmentary and imperfect, but many circumstances and incidental notices show how frequently the remote East was reached by European traders in the first half of the 14th century,—a state of things which it is very difficult to realize when we see how all those regions, when reop-

ened to knowledge two centuries later, seemed to be discoveries as new as the empires which, about the same time, Cortes and Pizarro were conquering in the West.

But by far the most distinct and notable evidence of the importance and frequency of European trade with Cathay, of which silk and silk goods formed the staple, is to be found in the commercial hand-book (*circa* 1340) of Francesco Balducci Pegolotti, a clerk and factor of the great Florentine house of the Bardi, which was brought to the ground about that time by its dealings with Edward III. of England. The first two chapters of this work contain instructions for the merchant proceeding to Cathay; and it is evident, from the terms used, that the road thither was not unfrequently travelled by European merchants, from whom Pegolotti had derived his information. The route which he describes lay by Azoff, Astrakhan, Khiva, Otrar (on the Jaxartes), Almálík (Gulja in Ili), Kan-chow (in Kansuh), and so to Hang-chow and Peking.

When the throne of the degenerate descendants of Jenghiz began to totter to its fall, missions and merchants alike disappear from the field. We hear, indeed, once and again of ecclesiastics despatched from Avignon, but they go forth into the darkness, and are heard of no more. Islam, with all its jealousy and exclusiveness, had recovered its grasp over Central Asia; the Nestorian Christianity which once had prevailed so widely was vanishing, and the new rulers of China reverted to the old national policy, and held the foreigner at arm's length. Night descended upon the further East, covering Cathay with those cities of which the old travellers had told such marvels, Cambaluc and Cansay, Zayton and Chinkalan. And when the veil rose before the Portuguese and Spanish explorers of the 16th century, those names are heard no more. In their stead we have CHINA, *Peking*, *Hangchow*, *Chincheo*, *Canton*. Not only were the old names forgotten, but the fact that those places had ever been known before was forgotten also. Gradually new missionaries went forth from Rome—Jesuits and Dominicans now; new converts were made, and new vicariats constituted; but the old Franciscan churches, and the Nestorianism with which they had battled, had alike been swallowed up in the ocean of Pagan indifference. In time a wreck or two floated to the surface,—a MS. Latin Bible or a piece of Catholic sculpture; and when the intelligent missionaries called Marco Polo to mind, and studied his story, one and another became convinced that Cathay and China were one.

But for a long time all but a sagacious few continued to regard Cathay as a region distinct from any of the new-found Indies; whilst mapmakers, well on into the 17th century, continued to represent it as a great country lying entirely to the north of China, and stretching to the Arctic Sea.

It was Cathay, with its outlying island of Zipangu (Japan), that Columbus sought to reach by sailing westward, penetrated as he was by his intense conviction of the smallness of the earth, and of the vast extension of Asia eastward; and to the day of his death he was full of the imagination of the proximity of the domain of the Great Khan to the islands and coasts which he had discovered. And such imaginations are curiously embodied in some of the maps of the early 16th century, which intermingle on the same coast-line the new discoveries from Labrador to Brazil with the provinces and rivers of Marco Polo's Cathay.

Cathay as a supposed separate entity may be considered to come to an end with the journey of Benedict Goës, the lay-Jesuit. This admirable person was, in 1603, dispatched through Central Asia by his superiors in India with the specific object of determining whether

the Cathay of old European writers, and of modern Mahometans, was or was not a distinct region from that China of which parallel marvels had now for some time been recounted. Benedict, as one of his brethren pronounced his epitaph, "seeking Cathay found Heaven." He died at Suhchow, the frontier city of China, but not before he had ascertained that China and Cathay were the same.

China as the name is at present used, embraces within its boundaries the dependencies of Manchuria, Mongolia, and Tibet, in addition to China Proper. It is bounded on the N. by Asiatic Russia along a frontier extending nearly 3000 miles; on the E. by those portions of the Pacific Ocean which are known in the north as the Sea of Japan, in the central portion as the Yellow Sea, and in the south as the China Sea; on the S. and S.W. by the China Sea, Cochin China, and Burmah; and on the W. by Kashmir and Eastern Turkistan, which province has within the last few years been wrested from China by the Ataligh Ghazee.

The area of China Proper is not more than half that of the whole empire; it extends as far north only as 41° lat., and as far west as 98° long. It is about 1474 miles in length, and its breadth is about 1355 miles. Its coast line measures about 2500 miles; its land frontier is described as being 4400 miles in length, and its area is said to contain 1,348,870 square miles.

One of the most noticeable features in the surface of China is the immense delta plain in the north-eastern portion of the empire, which, curving round the mountainous districts of Shan-tung, extends for about 700 miles in a southerly direction from the neighborhood of Peking, and varies from 150 to 500 miles in breadth. Commencing in the prefecture of Yung-ping Foo, in the province of Chih-li, its outer limit passes in a westerly direction as far as Chang-ping Chow, north-west of Peking. Thence running a south-south-westerly course it passes westward of Ching-ting Foo and Kwang-ping Foo till it reaches the upper waters of the Wei river in Ho-nan. From this point it turns westward and crosses the Hwang-ho, or Yellow river, in the prefecture of Hwai-king. Leaving this river it takes a course a little to the east of south, and passing west of Joo-ning Foo, in the province of Ho-nan, it turns in a more easterly direction as far as Leuchow Foo. From this prefecture an arm of the plain, in which lies the Tsaou Lake, stretches southward from the Hwai river to the Yangtsze Keang, and trending eastward occupies the region between the river and Hang-chow bay. To the north of this arm rises a hilly district, in the center of which stands Nanking.

The boundary of the plain round the mountainous region of Shang-tung begins at Lai-chow Foo, and describes a huge bow to the west and south, reaching westward to the prefecture of Tse-nan, and southward to the frontier of the province of Keang-soo, which boundary it follows to the sea. The greater part of this vast plain descends very gently towards the sea, and is generally below the level of the Yellow river,—hence the disastrous inundations which so often accompany the rise of the Hwang-ho. It is the delta of the Yellow river, and also to some extent of the Yangtsze Keang, and it is chiefly remarkable for its semi-annular shape, within which it encloses the mountain districts of the province of Shan-tung. Owing to the great quantity of soil which is brought down by the waters of the Yellow river, and to the absence of oceanic currents, this delta is rapidly increasing and the adjoining seas are as rapidly becoming shallower. As an instance, it is said that the town of Pootai was 1 le west of the sea-shore, in the year 220 B.C., and in 1730 it was 140 le inland, thus giving a yearly encroachment on the sea of about

100 feet. Again, Seen-shwuy Kow on the Peiho was on the sea-shore in 500 A.D., and is now about 18 miles inland.

The rest of the empire may be described as being either mountainous or hilly. Several ranges of high mountains, in connection with the mountain system of Central Asia, enter the western provinces of the empire, and after traversing the western and southern provinces in various directions, dwindle down to low hills as they approach the sea-coast. In the eastern portion of Tibet the Kwan-lun range throws off a number of branches, which spread first of all in a south-easterly direction, and eventually take a north and south course, partly in the provinces of Sze-chuen and Yun-nan, where they divide the beds of the rivers which flow into Siam and Cochin-China, as well as the principal northern tributaries of the Yang-tsze Keang. Another range, known as the Tung-nan, or Foo-new Shan, which appears to be the eastern termination of the great Kwan-lun range of Central Asia, and which is said to have several snow-clad peaks, enters China in the southern portion of the province of Kan-suh, and stretches in an easterly direction across the province of Shen-se into that of Honan, where it finally disappears. This range separates the waters which enter the Hwang-ho, or Yellow river, through the Wei and the Lo from those which flow into the Yang-tsze Keang, through the Kia-ling and the Han. Forming the northern frontier of the province of Sze-chuen runs the Kew-lung or Po-mung range, which entering China in 102° long. takes a general course of east as far as 112° long., at about which point it is lost sight of in the province of Hoo-pih. In the south the Nan-shan ranges, some peaks of which are said to reach above the snow-level, take their rise in Yun-nan, and after spreading in a series of ranges over the south and east portions of Kwang-se trend in an easterly direction, covering the entire province of Kwang-tung. Then turning north-eastward, they occupy the whole area of the provinces of Fuh-keen, Keang-se, Chě-keang, Hoonan, and southern Gan-hwuy, until they reach the Yang-tsze Keang; which river, from the Tung-ting lake to Chin-keang Foo, forms their northern boundary. It is reckoned that this mountain region occupies an area of about 300,000 square miles. Besides these more important ranges there are the Lung mountains in Kan-suh, the Ta-hang Mountains in Shan-se, the Tac Mountains in Shan-tung, and many others, among which may be mentioned the ranges which form the northern frontier of Chih-li. It will thus be seen that there is a general subsidence from the mountain districts in the western portions of the empire to the central and south-eastern provinces, where the mountains dwindle down to hills, and where the snowy peaks and rugged sides of the ranges in Yun-nan and Sze-chuen are exchanged for the wooded tops and carefully-cultivated terraces of the littoral provinces.

The rivers of China are very numerous, and, with the canals, form some of the most frequented highways in the empire. The two largest are the Yang-tsze Keang and the Hwang-ho, or Yellow river, the latter of which is less known to fame for its value in a commercial sense, than by reason of the vast and destructive floods which have from time to time caused it to inundate the low-lying country on either side of its banks. According to Chinese geographers the Hwang-ho takes its rise in the "Sea of Stars," on the eastern side of the Bayen-kára Mountains, in the Mongolian province of Kokonor, where it has gained for itself the name of Ah-urhtan, or Golden river, from the color of its waters. For some miles it runs in two streams, and when united takes at first a south-easterly course. Next trending in a north-easterly direction it traverses the province of

Kan-suh and passes northwards through the Great Wall until it reaches the rising ground in the neighborhood of the In-shan. Thence curving to the south-east and south it reënters China through the Great Wall and continues its southerly course, forming the boundary between the provinces of Shen-se and Shan-se as far as Tung-kwan. Here it makes a sharp bend and runs nearly due east to Kai-fung Foo. In the neighborhood of this city it enters on the great eastern plain of China, and the alterations which have taken place in its bed between this district and the sea has earned for it the well-deserved title of "the Sorrow of Han." According to the Chinese records this portion of the river has changed its course nine times during the last 2500 years, and has emptied itself into the sea at as many different mouths, the most northerly of which is represented as having been in about 39° lat., or in the neighborhood of the present mouth of the Peiho, and the most southerly being that which existed before the last change in 1851-53, in 34° lat. The breaches that were made in the northern bank of the river east of Kai-fung Foo during the floods of 1851, 1852, and 1853 caused its waters gradually to overflow the low-lying country to the northwards; and these, after spreading over a belt of country about 12 miles in width, struck the bed of the Ta-tsing river, and having forced their way into that narrow, clean-cut channel, followed it to the sea. The result of this change has been that the old course of the river is dry, and that the muddy dun-colored waters—hence the name Hwang-ho, or Yellow river—after permanently flooding a large tract of country, are now leading up to another grand catastrophe by destroying the banks of the new channel which they have found for themselves. Already the increased volume of water has added another obstruction to those before existing to the navigation of the river by destroying a large stone bridge of seven arches at Tse-hoheen, a town situated 210 miles from the mouth, the ruins of which have seriously impeded the course of the stream. But the Hwang-ho is of little value for navigating purposes. At its mouth lies a bar, having at its deepest part about from 7 to 9 feet of water only; further up, about 3 miles below Tse-hoheen, there is a shoal extending right across its bed, at the deepest point of which there is about 11 feet of water, while in the passage at the extremity of the sunken bridge at Tse-hoheen there is a depth of only about 5 feet.

A far more valuable river in every way is the Yang-tsze Keang, which takes its rise in the Min mountains of Tibet, and after a course of 2900 miles empties itself into the Yellow sea. In common with most of the large rivers of China, the Yang-tsze Keang is known by various names in different parts of its course. From its source in Tibet to Seu-chow Foo in Sze-chuen, it bears the name of Kin-sha Keang, or River of the Golden Sands. From Seu-chow Foo to Yang-chow Foo in Keang-soo, its volume has gained for it the title of Ta Keang, or the Great river; and from the ancient name of the district through which it thence passes, it is known for the remainder of its course as the Yang-tze Keang, or the Yang-tze river. Chinese geographers state that it has two sources, the more northerly of which gives birth to the Kang-chuh ah-lin at a point about 1600 le to the south-east of the source of the Yellow river; and to the more southerly one of the two, the Na-ko-to-moo-tsing ah-lin, which rises on the south of the range, owes its existence. Both these streams twist and turn eastward for upwards of 200 le, when they unite and form one stream, which flows in an easterly and afterwards southerly course until it enters the Chinese province of Yun-nan at the Hwang-shing Pass, or Pass of Imperial Victory. It then turns north-

ward into the province of Sze-chuen, and thence after receiving several important tributaries it takes an east-north-easterly course, until passing into Hoo-pih it dips southwards to the boundary of Hoo-nan in the neighborhood of the Tung-ting lake, the waters of which contribute largely to swell its volume. From this point it makes a curve northwards as far as Han-kow, receiving on the way the waters of the Han river. From Han-kow it bends its course again southwards to the Po-yang lake. Thence through the province of Gan-hwuy it proceeds in a north-easterly direction until it reaches Nanking, 200 miles from the sea. Here the influence of the tide begins to be felt, and beyond this point it gradually widens into the great estuary by which it is connected with the ocean. The basin area of the Yangtsze Keang is reckoned to be about 548,000 square miles, and it is navigable for steamers as far as I-chang, upwards of 1200 miles from its mouth. Unlike the Yellow river, along the navigable portion of the Yangtsze Keang are dotted many rich and populous cities, among which the chief are Nanking, Gan-king, Kew-keang, Han-kow, and I-chang. Beyond this last-named city the navigation becomes impossible for any but light native craft, by reason of the rapids which occur at frequent intervals in the deep mountain gorges through which the river runs between Kwai-chow and I-chang.

Next in importance to the Yangtsze Keang as a water highway is the Yun-ho, or, as it is generally known in Europe, the Grand canal. This magnificent artificial river reaches from Hang-chow Foo in the province of Chĕ-keang to Tien-tsin in Chih-li, where it unites with the Peiho, and thus may be said to extend to Tung-chow in the neighborhood of Peking. After leaving Hang-chow it passes round the eastern border of the Tai-hoo, or Great lake, surrounding in its course the beautiful city of Soo-chow, and then trends in a generally north-westerly direction through the fertile districts of Keang-soo as far as Chin keang on the Yangtsze Keang.

Another of the large rivers of China is the Han Keang, which rises in the Po-mung or Kew-lung mountains to the north of the city of Ning-keang Chow in Shen-se.

In the southern provinces the Se-keang, or Western river, is the most considerable.

The Peiho is a river of importance as being the high water-way to Peking.

There are numerous lakes in the central provinces of China. The largest of these is the Tung-ting lake in Hoo-nan, which, according to the Chinese geographers, is upwards of 800 le, or 266 miles, in circumference.

One of the most remarkable features in the physical geography of China is the existence of a vast region of loess in the northern portion of the empire. This peculiar formation covers the province of Chih-li (with the exception of the alluvial plain), Shan-se, northern Shen-se, Kan-suh, and northern Ho-nan, constituting altogether an area of about 250,000 square miles. Loess is a solid but friable earth of a brownish-yellow color. It spreads alike over high and low grounds, smoothing off the irregularities of the surface, and is often to be found covering the sub-soil to a depth of more than 1000 feet. It has a tendency to vertical cleavage, and wherever a river cuts into it, the loess encloses it between perpendicular cliffs, in many places 500 feet in height. These when washed by the water are speedily undermined, and the loess breaks off in vertical sheets, which fall into the river and are carried down by the stream. In this way have been deposited the sediments which to a great extent constitute the great plain, and render the Gulf of Pih-chih-li and the Yellow sea so shallow. From an economical point of view the loess is invaluable

to the natives of the north of China. In its perpendicular cliffs which are removed from the action of running water are dug out innumerable caves, in which a large majority of the people inhabiting the loess region dwell, while its surface yields abundant crops, requiring no application of manure and but slight expenditure of labor in preparation. Wherever it is found, therefore, whether on a plain or at an elevation of 7000 or 8000 feet, it is available for agricultural purposes. The Chinese call it Hwang-too, or "Yellow Earth," and it has been suggested that the imperial title Hwang-te, "Yellow Emperor," or "Ruler of the Yellow," has had its origin in the fact that the emperor was lord of the loess or the "Yellow Earth."

It was an ancient belief of Chinese writers that there had existed a period of 2,267,000 and odd years between the time when the powers of Heaven and Earth first united to produce man as the possessor of the soil of China, and the time of Confucius. This having been accepted as a fact, it became necessary for the earlier historians to invent long lines of dynasty rulers to fill up the gap between the creation and the period with which the *Book of Historical Documents* commences. Accordingly, we find a series of ten epochs described as preceding the Chow dynasty. The events connected with most of these are purely fabulous, and it is not until we come down to the eighth period that we can trace any glimmer, however obscured, of history.

As the early history of every ancient people is more or less vitiated by fable, we ought not to be more fastidious or less indulgent towards the marvellous in that of China, than we are towards Egyptian, Greek, or Roman history. The main facts may be true, though the details are incorrect; and though the accidental discovery of fire may not have happened under Suy-jin She, yet it probably was first communicated by the friction of two sticks, which at this day is a common method among almost all savages of producing fire. Nor is it perhaps strictly correct that Fuh-he made the accidental discovery of iron, by having burnt a quantity of wood on a brown earth, any more than that the Phœnicians discovered the mode of making glass by burning green wood on sand; yet it is not improbable that some such processes first led to these discoveries.

But with the reign of Yaou (2356 B.C.) we emerge to some extent from the mist which hangs over the earlier records of China. Here Confucius takes up the strain, and though his narrative will not bear criticism it yet furnishes us with some historical data. The characters of Yaou and his successor Shun have been the theme of every writer on history from the time of Confucius downward. So strong was the force of the examples they set that virtue pervaded the land, crime was unknown, and the nation increased in size and prosperity. Yaou established his capital at Ke-choo in Shang-tung, and established marts and fairs throughout the land. After his death he was succeeded by Shun, who for some years had shared with him the responsibilities of government. It was during this period that the "Great" Yu was employed to drain off the waters of the flood which had visited the north of China in consequence, probably, of one of the numerous changes in the course of the Yellow river. This work he accomplished after having expended nine years' labor upon it, and as a reward for this and other services he was raised to the throne on the death of Shun. After him succeeded a number of rulers, each one less qualified to govern than the last, until one Kĕě (1818 B.C.) ascended the throne. In this man were combined all the worst vices of kings. He was licentious, cruel, faithless, and dissolute. From such a one Heaven withdrew her protection. The people

rose against him, and having swept away all traces of him and his bloody house, they proclaimed the commencement of a new dynasty, to be called the Shang dynasty, and their leader, Tang, they named the first emperor of the new line (1766 B.C.). Aided by wise counsellors, this monarch restored to the country some of its former prosperity. But the same fatality which attended the descendants of Yu overtook also his successors. They became self-indulgent and effeminate. They lost all hold on the affections of their people, so that when Chow, aided and abetted by his consort Take, gave vent to passions of a more than usually cruel and debased nature, they revolted, and Woo-Wang ascended the throne as the first emperor of the Chow dynasty. Woo-Wang was all that tradition represents the founders of dynasties to have been. He was brave, talented and virtuous, but he committed the mistake of dividing his kingdom into seventy-two feudal states in order that he might bestow principalities on his own relations and the descendants of former emperors. The fatal result of this subdivision soon became obvious. Jealousies sprang up among the princes, internecine wars raged unceasingly, and the allegiance of the feudatories to the central authority became daily weakened. Nor were the enemies of the empire confined to those within its borders, for, during the reign of Muh Wang (936 B.C.) we are told that the Tartars, of whom we now hear for the first time, taking advantage of the confusion which reigned within the limits of the empire, made predatory incursions into the states, and though they were invariably driven off, yet from this time they remained a constant source of danger and annoyance to the Chinese. Such was the state of the empire, distracted by internal wars and harassed by the attacks of a foreign foe, when Confucius was born (551 B.C.), and though the sage devoted his life to the promulgation of virtue and the right principles of government, little or no heed was at the time paid to his remonstrances and exhortations, and he died (475 B.C.) in retirement, a neglected and disappointed man. Neither did the efforts of Laou-tsze, who was a few years senior to Confucius, or of Mencius, who succeeded him after an interval of 107 years, meet with any better success. Disorder was rife throughout the land, and the authority of the central government was on the wane.

Signs now began to appear foreshadowing the fall of the dynasty. During the reign of Wei-Lëë Wang, the brazen vessels upon which Yu had engraved the different provinces of the empire were observed to shake violently, and shortly afterwards a mountain fell across the stream of the Yellow river causing a widespread inundation. As the empire became weakened by internal dissensions so much the more did the neighboring states increase. Of these the most important was that of Thsin, on the north-west, which, when it became evident that the kingdom of Chow must fall to pieces, took a prominent part in the wars undertaken by Tsoo on the south and Thsin on the north for the coveted prize. But the struggle was an unequal one. The superiority of Thsin in point of size, and in the number of fighting-men at his command, carried all before it, and in 255 B.C. Chaou-Seang Wang, having silenced his rivals, possessed himself of the imperial states. Thus fell the Chow dynasty, during the existence of which the empire may have said to have been extended from the 33d to the 38th parallels of latitude, and from the 106th to the 119th degree of longitude, that is to say, it included the southern portions of the province of Chih-li, Shan-se, and Shen-se, the northern portions of Ho-nan and Keang-soo, and the western half of Shan-tung. The capital was fixed at Chan-gan Heen in Shen-se, but though virtually emperor, Chaou-

seang Wang abstained from adopting the imperial title, and he died in 251 B.C., leaving his son Heaou-Wân Wang to succeed him. Scarcely was this sovereign seated on the throne when he was attacked with a fatal illness, and after a reign of but three days he became "a guest in heaven," and Chang-seang Wang his son reigned in his stead. The only title to fame possessed by this monarch was that he was the father of one of the greatest rulers China has ever had. As he was himself a man of no mark, it was probably fortunate for the country that he occupied the throne for only three years, and at the end of that time (246 B.C.), he yielded up his earthly honors to Che Hwang-te, "the first universal emperor." This sovereign was but thirteen years of age when he ascended the throne, but young as he was he speedily made his influence everywhere felt. He chose Heen-yang, the modern Se-gang Foo, as his capital, and built there a magnificent palace, which was the wonder and admiration of his contemporaries. He constructed roads through the empire, he formed canals and erected numerous and handsome public buildings. Having by these and other means settled the internal affairs of his kingdom, he turned his attention to the enemies beyond his frontier. Chief among these were the Heung-noo Tartars, whose attacks had for years kept the Chinese and neighboring principalities in a state of disquiet. Against these foes he marched with an army of 300,000 men and completely routed them, exterminating those in the neighborhood of China, and driving the rest into the mountains of Mongolia. He had no sooner returned from this campaign than he was called upon to face a formidable rebellion in Ho-nan, which had been set on foot by the adherents of the feudal princes, all of whom he had dispossessed when he reconstructed the empire on a monarchical principle. Against these rebels he was as successful as he had been against the Heung-noo, and as soon as peace was restored he marched southwards to subdue the tribes on the south of the Nan-shan ranges, that is to say the inhabitants of the modern provinces of Fuh-keen, Kwang-tung, and Kwang-se. Having accomplished this vast undertaking, he returned to his capital to administer the empire he had won, the limits of which were as nearly as possible those of modern China proper.

One monument remains to the present day to bear witness to his enterprising energy. Finding that the northern states of Thsin, Chaou, and Yen were building lines of fortification along their northern frontier for protection against the incursions of the Heung-noo, he conceived the idea of building one gigantic wall, which was to stretch across the whole northern limit of the huge empire from the sea to the furthest western corner of the modern province of Kan-suh. This work was begun under his immediate supervision in 214 B.C., but though it was energetically proceeded with, he died before it was completed. Notwithstanding all that he had done for the country he was very unpopular with the upper classes. He was a reformer, and reformers were as distasteful to the Chinamen of that time as to those of to-day, and schoolmen and pedants were for ever holding up to the admiration of the people the heroes of the feudal times and the advantages of the system they administered. This doctrine was full of danger to the state, and Che Hwang-te therefore determined to break once for all with the past. To this end he ordered the destruction of all books having reference to the past history of the empire. This decree was almost universally carried out, and many scholars were put to death for failing in obedience to it. The measure, however, widened the breach between the emperor and the upper classes, and when, on his death, 210 B.C., his son Un-

she Hwang-te ascended the throne, the wide-spread discontent broke out into tumults. Taking advantage of the confusion which thus arose, the princes who had been dispossessed by Che Hwang-te again attempted to regain the thrones they had lost. Unlike his father, Urh-she Hwang-te was quite unable to grapple with troublous times. He was a weak and debauched youth, and was murdered after having offered a feeble resistance to his enemies. His son Tsze-yung thereupon surrendered himself to Lew Pang, one of the two generals, who at that time were the leaders of the rebellion. Unfortunately, however, he afterwards fell into the hands of Heang Yu, the other chieftain, who was as bloodthirsty as Lew Pang was merciful, and who instantly put him to death along with all his family and associates. The rivalry between these two chieftains broke out into open warfare almost immediately after this event, on Heang Yu usurping to himself imperial honors. For five years war raged between the two combatants, and at the end of that time Lew Pang was left master of the field after a decisive battle before Woo-keang, in which Heang Yu was slain. Lew Pang was then proclaimed emperor (206 B.C.) under the title of Kaou-te, and the new line was styled the Han dynasty.

On ascending the throne Kaou-te established his capital at Lo-yang in Ho-nan, and afterwards removed it to Chang-gan in Shen-se. Having founded his right to rebel on the oppressive nature of the laws promulgated by Che Hwang-te, he abolished the ordinances of Thsin, with the exception of that referring to the destruction of the books—for, like his great predecessor, he dreaded the influence exercised by the *Literati*—and he exchanged the worship of the gods of the soil of Thsin for that of those of Han, his native state. His successor, however, gave every encouragement to literature, and appointed a commission to restore as far as possible the texts which had been destroyed by Che Hwang-te. In this the commission was very successful. It was discovered that in many cases the law had been evaded, and numerous books which had ceased to have any corporeal being were found to exist on the tablets of the memories of scholars. This new period of literary activity added to the general prosperity of the empire. There was peace within its borders, and its frontiers remained unchallenged, except occasionally by the Heung-noo, who suffered many and severe defeats at the hands of the Chinese generals. Thwarted, therefore, in their attacks on China, these incorrigible marauders turned their attention to the kingdom of Yuě-che, which had grown up in the western extremity of Shen-se, and after much fighting drove their victims along the Teen-shan-man-loo to modern Western Tartary, that is to say, the territory between Turkestan and the Caspian sea. This position of affairs suggested to the emperor the idea of forming an offensive and defensive alliance with the Yuě-che against the Heung-noo. With this object an ambassador was sent to Western Tartary, who, after having been twice imprisoned by the Heung-noo, returned with no more beneficial result than that his embassy was the means of introducing silk into Europe. However, in 121 B.C., the reigning emperor, Woo-te, sent an expedition against the Heung-noo, and completely defeated them. The conquered people tendered their submission to the victors, and the Chinese established colonies, built towns, and appointed governors in the vanquished provinces. From this time the power of the Heung-noo began to wane. Dissension broke out among their different chieftains, and in 93 A.D. they were completely driven out of Eastern Asia, and the 3d century witnessed their flight into the district north-east of the Caspian sea, now occupied by the Kirghese, a broken and impotent remnant. Few Chinese dynasties

have lasted much more than two centuries, and the first Han dynasty was no exception to the rule. About the beginning of the Christian era a notable rebel, one Wang Mang, rose in revolt against the infant successor of Ping-te (1 A.D.), and in 9 A.D. proclaimed himself emperor. He, however, at best only gained the suffrages of a portion of the nation, and before long his oppressive acts estranged even these supporters from him. In 23 A.D. Lew Sew headed a formidable rising against him and completely defeated him. He was destined, however, to die by the hands of his followers. In a revolt of his remaining troops his head was struck from his shoulders, and his body was torn in pieces by his own soldiery.

His opponent, Lew Sew, was now proclaimed emperor under the title of Kwang-woo-tee, and in consequence of his fixing on Lo-yang in Ho-nan as his capital, the line of which he was the first emperor became known as the Eastern Han dynasty. Within this period are embraced some of the most remarkable events in the history of China. During the reign of his successor Ming-te, 65 A.D., Buddhism was introduced from India into China, and about the same time the celebrated General Pan Chaou was sent on an embassy to the king of Shen-shen, a small state of Turkestan, near the modern Pidjan. So successful was he in his mission, that before long he added the states of Shen-shen, Khoten, Kuché, and Kashgar as apanages to the Chinese crown. But in accordance with precedent, after a time the glory of the dynasty became dimmed. Disturbances occurred in the provinces, and, in 173, a virulent pestilence broke out which held possession of the country for eleven years. A magical cure for this plague was said to have been discovered by a Taouist priest named Chang Keo, who made so good a use of his discovery that in a single month he had gained a sufficiently large following to enable him to gain possession of the northern provinces of the empire. He was, however, opposed and defeated by Tsaou Tsaou, another aspirant to imperial honors, whose son, Tsaou Pei, on the death of Heen-te (220 A.D.), proclaimed himself emperor, adopting the title of Wei as the appellation of his dynasty. But at the same time there were two other Richmonds in the field, Lew Pei and Sun Keuen, and the strength of these three adventurers was so nearly equal that they agreed to divide the empire between them. Tsaou Pei, under the title of Wăn-te, ruled over the kingdom of Wei (220), which occupied the whole of the central and northern portion of China. Lew Pei established the Shuh Han dynasty in the modern province of Sze-chuen (221), and called himself Chaou-lěe-te; and to Sun Kueun Khan fell the southern provinces of the empire, from the Yang-tsze Keang southwards, including the modern Tonquin, which he formed into the kingdom of Woo with Nan-king for his capital, and adopted for himself the imperial style of Ta-te (222 A.D.)

But China during the period of the "Three Kingdoms" was a house divided against itself. Rivalries, the seeds of which had been sown at the time of the partition of territory, broke out more fiercely as soon as the courts were established. Lew Pei, as a descendant of the house of Han, looked upon himself as the rightful sovereign of the whole empire, and he despatched an army under the command of the celebrated general Choo-ko Leang to support his claims. This army was met by an opposing force under the Wei commander Sze-ma E, of whom Chinese historians say that "he led armies like a god," and who, by adopting a Fabian policy, completely discomfited his adversary. But the close of this campaign brought no peace to the country. Wars became chronic, and by degrees the reins of power slipped out of the hands of emperors into those

of their generals. Foremost among these were the members of the Sze-ma family of Wei. Sze-ma E left a son, Sze-ma Chaou, scarcely less distinguished than he was himself, and when Sze-ma Chaou was gathered to his fathers his honors descended to Sze-ma Yen, who, finding the country ripe for a change, deposed the ruling sovereign of Wei, and proclaimed himself emperor of China (265 A.D.). His dynasty he styled the Western Tsin dynasty, and he adopted for himself the title of Woo-te. The most noticeable event in this reign was the advent of the ambassadors of the Emperor Theodosius in 284. For some years the neighboring states appear to have transferred their allegiance from the House of Wei to that of Tsin. But the condition of China at this time was such that no government could stand unless administered by an able and powerful chief. Woo-te's successors failing to fulfill these conditions, the country soon fell again into disorder. The Heung-noo, encouraged by the decadence of the Chinese power, renewed incursions into the empire at the beginning of the 4th century, and in the confusion which followed on these attacks from without as well as those that were distracting the country from within, an adventurer named Lew Yuen established himself (in 311) as emperor, first at Ping-yang in Shan-se and afterwards in Lo-yang and Chang-gan. The history of this period is very chaotic. Numerous states sprung up into existence, some founded by the Heung-noo, and others by the Seen-pe tribe, a Tungusic clan inhabiting a territory to the north of China, and who afterwards established the Leaou dynasty in China. The hand of every man was against his neighbor. Nothing was lasting; and in 419 the Eastern Tsin dynasty, which had dragged on a checkered existence for nearly a century, came to an end, and with it disappeared for close on two hundred years all semblance of united authority. The country became divided into two parts, the north and the south. In the north four families reigned successively, two of which were of Seen-pe origin, viz., the Wei and the How Chow, the other two, the Pih Tse and the How Leang, being Chinese. In the south five different houses supplied rulers, who were all of Chinese descent.

This period of disorder was brought to a close by the establishment of the Suy dynasty (590). Among the officials of the ephemeral dynasty of Chow was one Yang Keen, who on his daughter becoming empress (578) was created duke of Suy. Meanwhile, he waited for an opportunity to overturn the reigning house, and, as has so often happened in the history of China, he had not long to wait. The last of the house of Chin was as weak and profligate as any of his predecessors. Him Yang Keen deposed and immediately ascended the throne (590). The country, weary of contention, was only too glad to acknowledge his undivided authority; and during the sixteen years of his reign the internal affairs of China were comparatively peaceably and prosperously administered. The emperor instituted a new and improved code of laws, and showed his respect for literature by adding 5000 volumes to the 10,000 which composed the imperial library. Abroad, his policy was equally successful. He defeated the Tartars and chastised the Coreans, who were disposed to throw aside his authority. The only scene of disorder was in his own household. His sons were unruly and violent, and after his death, in 604, his second son forced the heir to the throne to strangle himself, and then instantly assumed the imperial yellow. At first this usurper, Yang-te, gave himself up to every species of debauchery, but wearying of sensual lusts, he was seized with a desire for conquest. He sent expeditions against the Tartars, and regained some of the influence which had formerly be-

longed to China in Central Asia. He himself headed an expedition against the Ouigours at the same time that one of his generals annexed the Lew Kew Island to the imperial crown. During his reign the volumes in the imperial library were increased to 54,000, and he spent vast sums in erecting a magnificent palace at Lo-yang, and in constructing unprofitable canals. These and other extravagances laid so heavy a burden on the country that discontent began again to prevail, and on the emperor's return from a successful expedition against the Coreans, he found the empire divided into rebellious factions. In the turmoil which followed General Le Yuen rose to the surface, and on the death of the emperor by assassination this man set Kung-te, the rightful heir, on the throne (617) until such time as he should have matured his schemes. In the following year a dose of poison vacated the throne, and Le Yuen forthwith assumed the imperial sceptre, and proclaimed himself as Tai-tsung the first emperor of the Tang dynasty. At this time the Turks were at the height of their power in Asia, and Tai-tsung was glad to purchase their alliance with money as the Emperor Justinian had been in 558. But divisions weakened the power of this mighty horde, and Tai-tsung, taking advantage of the opportunity, regained much of the position in Central Asia which had been formerly held by China.

In 640, Hamil, Turfan, and the rest of the Ouigour territory were again included within the Chinese frontier, and four military governorships were appointed in Central Asia, viz., at Kuché, Khoten, Kharastan, and Kashgar. At the same time the frontier was extended as far as Eastern Persia and the Caspian sea. So great was now the fame of China, that ambassadors from Nepaul, Magadha, Persia, and Rome (643) came to pay their court to the Great Khan. Before this time, in 635, a Nestorian priest, O-lo-peen by name, arrived from Rome, who so ingratiated himself with the emperor that he built for him a church, and appointed twenty priests to perform the services. Subsequently, on the death of Tai-tsung (649), we find the strange phenomenon of the imperial power seized upon by a woman in a country where women were regarded as little else than slaves. On the accession of Kaou-tsung (650) his wife, Woo How, gained supreme influence in the management of affairs, and on the death of her husband in 683 she set aside his lawful successor, Chung-tsung, and took possession of the throne. Nor was she unequal to the office she had usurped. She governed the empire with discretion, and her armies defeated the Tibetans, who had latterly gained possession of Kuché, Khoten, and Kashgar. Thus she reestablished the imperial government in the west, and her generals proved themselves victorious over the Khitan in the north-east. On her death, 705, Chung-tsung partially left the obscurity in which he had lived during his mother's reign. But his wife, desiring to play a similar rôle to that enjoyed by her mother-in-law, poisoned him and set his son, Juy-tsung (710), on the throne. This monarch, who was weak and vicious, reigned but three years, and was succeeded by Yuen-tsung (713), who was in some respects an enlightened and able prince. He busied himself with introducing reform into the administration of the empire, and encouraged literature and learning with wisdom and discretion. During his reign the king of Khokand applied to him for aid against the Tibetans and Arabs, who were advancing to attack him. Yuen-tsung promptly sent an army to his succor, and the aggressors were completely defeated. In a war with the Khitans in the north-east he was not so successful; and in the disorder which arose in consequence of the invasion of the northern provinces by these formidable neighbors, General Gan Luh-shan, an officer

of Turkish descent, placed himself at the head of a revolt, and having secured Tung-kwan on the Yellow river, advanced on Chang-gan. In this emergency the emperor fled, and placed his son, Suh-tsung, on the throne (756). This sovereign summoned to his aid the forces of the kings of Khoten and Khokand, of the state of Bokhara, of the Ouigours, and of the Arabs, and with these allies he completely defeated Gan Luh-shan and suppressed the rebellion. The promise held out by this energetic beginning of his reign was not fulfilled by his later career. He fell under the influence of the women and eunuchs of his harem, and died unregretted in 762. During the following reigns the Thebitans made constant incursions into the western provinces of the empire, and Tai-tsung (763-780), was compelled to purchase the assistance of the Ouigours against those intruders by giving a Chinese princess as wife to the Khan. At this epoch the eunuchs of the palace succeeded in gaining an unwonted degree of power, and several of the subsequent emperors fell victims to their plots.

The history of this and the following century is for the most part a monotonous record of feeble Governments, low and vicious intrigues, oppressions, and rebellions. Almost the only relief in the constant rounds of these scenes towards the close of the Tang dynasty was the iconoclastic policy of Woo-tsung (841-847). Viewing the increase of monasteries and ecclesiastical establishments as an evil, he abolished all temples, closed the monasteries and nunneries, and sent the inmates back to their families. Foreign priests were subjected to the same repressive legislation, and Christians, Buddhists, and Magi were bidden to turn their faces westward in the direction of the places from whence they came. With his death terminated also this policy. Buddhism again revived during the reign of the Emperor E-tsung (860-874), who, having had the honor to discover a bone of Buddha, brought it to the capital in great state. By constant internal dissensions and outbreaks the empire became so weakened that the prince of Leang found no difficulty in gaining possession of the throne, and in 907 he assumed the imperial yellow with the title of Tai-tsoo, the first emperor of the later Leang dynasty. Thus ended the Tang dynasty, which is regarded as being the Golden Age of literature.

Five dynasties, viz., the Later Leang, the Later Tang, the Later Tsin, the Later Han, and the Later Chow followed each other in quick succession between the years 907 and 960. But though the monarchs of these lines nominally held sway over the empire, their real power was confined to very narrow limits. The disorders which were rife during the time when the Tang dynasty was tottering to its fall fostered the development of independent states, and so arose Leang in Ho-nan and Shan-tung, Ke in Shen-se, Hwai-nan in Keang-nan, Chow in Sze-chuen and parts of Shen-se and Hoo-kwang, Woo-yuë in Chë-keang, Tsoo and King-nan in Hoo-kwang, Ling-nan in Kwang-tung, and the Ouigours in Tangout.

A partial end was made to this recognized disorganization when in 960, General Chaou Kwang-yin was proclaimed by acclamation of the army emperor in succession to the youthful Kung-te, who was compelled to vacate the throne to make way for his quondam lieutenant. The circumstances of the time justified the exchange. It required a strong hand to weld together again the different parts into which the empire had been divided, and to resist the attacks of the Khitan Tartars, whose rule at this period extended over the whole of Manchuria and Leaou-tung. Against these aggressive neighbors Tai-tsoo né Chaou Kwang-yin directed his best efforts with varying success, and he died in 976,

while the war was still being waged. His son Tai-tsung (976-997) entered on the campaign with energy, but in the end was compelled to conclude a peace with the Khitans. His successor, Chin-tsung (997-1022), descended a step lower in his dealings with them, and agreed to pay them a tribute to induce them to abstain from their incursions. Probably this tribute was not sent regularly; at all events, under Jin-tsung (1023-1064), the Khitans again threatened to invade the empire, and were only persuaded to forego their intention by the emperor promising to pay them an annual tribute of 200,000 taels of silver, besides a great quantity of silken piece goods. Neither was this arrangement long binding, and so formidable were the advances made by the Tartars in the next and following reign, that Hwuy-tsung (1101-1126) invited the Neu-che Tartars to expel the Lhitans from Leaou-tung. The call was readily responded to; the service was effectually performed, but having once possessed themselves of the country they declined to yield it to the Chinese, and the result was that a still more aggressive neighbor was established on the north-eastern frontier of China. Without delay the Neu-che or Kins, as they now styled themselves, overran the provinces of Chih-li, Shen-se, Shan-se, and Ho-nan, and during the reign of Kaou-tsung (1137-1163) they advanced their conquests to the line of the Yang-tsze Keang.

It was during this period that the Mongols began to acquire power in Eastern Asia, and about the beginning of the 12th century they invaded the north-western frontier of China and the principality of Hea, which at that time consisted of the modern provinces of Shen-se and Kansuh. To purchase the good-will of these subjects of Jenghiz Khan the king of Hea agreed to pay them a tribute, and gave a princess in marriage to their ruler. Hitherto the Mongols had been vassals of the Kin Tartars, but the rapid growth of their power indisposed them to remain tributaries of any monarch, and in consequence of a dispute with the Emperor Wei-chaou Wang, Jenghiz Khan determined to invade the Kin province of Leaou-tung. In this expedition he was aided by the followers of the Khitan leader Yay-lu Tsoo-tsai, and in alliance with this general he captured Leaou-yang the capital city. After an unsuccessful invasion of China in 1212, Jenghiz Khan renewed the attack in the following year and completely defeated the Kins. In the confusion which followed the emperor was murdered by his generals, and Seuen-tsung ascended the throne. But the change of ruler brought no better fortune to the Kin cause. Jenghiz Khan divided his armies into four divisions, and made a general advance southwards. With resistless force his soldiers swept over the provinces of Ho-nan, Chih-li, and Shan-tung, destroying in their course upwards of ninety cities, and spreading desolation everywhere. It was their boast that a horseman might ride without stumbling over the sites where those cities had stood. Panic-stricken by the danger which threatened him, the emperor moved his court to Kai-fung Foo, much against the advice of his ministers, who foresaw the disastrous effect this retreat would have on the fortunes of Kin. And now, as foes advanced, friends fell off from the tottering house. The state of Sung, which up to this time had paid tribute, now declined to recognize Kin as its feudal chief, and a short time afterwards declared war against its quondam ally. Meanwhile, in 1215, Yay-lu Tsoo-tsai advanced into China by the Shan-hai Kwan, and made himself master of Peking, which until then was one of the few cities in Chih-li which remained to Kin. After this victory his nobles wished him to proclaim himself emperor, but he refused, being mindful of an oath which he had sworn to Jenghiz Khan. In 1216 Tung-kwan, a

pass in the mountains between the frontier of Ho-nan and Shen-se, which in the history of China has been the scene of numerous dynastic battles, forming as it does the only gateway between Eastern and Western China, was taken by the invaders. Year after year the war dragged on, the resistance offered by the Kins growing weaker and weaker. In 1220 Tse nan Foo, the capital of Shan-tung, was taken, and five years later Jenghiz Khan marched an army westward into Hea and completely conquered the forces of the king; but it was not until the year following the king's death that he took possession of the principality. In the succeeding year Jenghiz Khan himself was gathered to his fathers, and Ogdai his son reigned in his stead.

Thus died at the age of 66 this great general, whose armies had triumphed victoriously over the whole of Central Asia, from the Caspian sea and the Indus to Corea and the Yang-tse Keang. With his dying breath he adjured his son to complete the conquest of China, and with a view to this, the crowning desire of his life, he declined to nominate either of the two eldest sons who had been born to his Chinese wives as his heir, but chose rather his third son Ogdai, whose mother was a Tartar. On hearing of the death of Jenghiz Khan the Kins sent an embassy to his successor desiring peace, but Ogdai, remembering the last injunctions of his father, told them there would be no peace for them until their dynasty should be overthrown. Up to this time the Mongols had been without any code of laws. The old rule

"That they should take who have the power,
And they should keep who can,"

was the maxim on which they guided their mutual intercourse, and the punishments due for offences were left entirely to the discretion of the officials before whom the culprits were tried. The consistency, however, which had been given to the nation by the conquests of Jenghiz Khan made it necessary to establish a recognized code of laws, and one of the first acts of Ogdai was to form such a code. With the help also of Yay-lu Tsoo-tsai, he established custom houses in Chih-li, Shan-tung, Shan-se, and Leaoutung; and for this purpose divided these provinces into ten departments. Meanwhile the war with the Kins was carried on with energy. In 1230 Se-gan Foo was taken, and sixty important posts were captured. Two years later Too-le, brother of Ogdai, took Fung-tseang Foo and Hanchung Foo, in the flight from which last-named place 100,000 persons are said to have perished. Following the course of the River Han in his victorious career this general destroyed 140 towns and fortresses, and defeated the army of Kin at Mount San-fung.

In the following year the Mongol cause suffered a great loss by the death of Too-le. This famous warrior left behind him twelve sons, two of whom, Mangu, the first-born, and Kublai, the fourth son, were destined to sit in succession on the throne of their uncle Ogdai. But their time was not yet. First of all they had to win their spurs, and well did they prove by their deeds their right to the name of Mongol or "daring." In China, in Central Asia, and on the banks of the Caspian they led their victorious armies. But meanwhile, in 1232, the Mongols made an alliance with the state of Sung, by which, on condition of Sung helping to destroy Kin, Ho-nan was to be the property of Sung for ever. The effect of this coalition soon became apparent. Barely had the Kin emperor retreated from Kaifung Foo to Joo-ning Foo in Ho-nan than the former place fell into the hands of the allies. Next fell Loyang, and the victorious generals then marched on to besiege Joo-ning Foo. The presence of the emperor gave energy to the defenders, and they held out until

every animal in the city had been killed for food, until every old and useless person had suffered death to lessen the number of hungry mouths, until so many able-bodied men had fallen by the hand of the enemy that the women manned the ramparts, and then the allies stormed the walls. Once inside the town the inhabitants, enfeebled by starvation, fell ready victims to their swords. The emperor, like another Sardanapalus, despairing now of success, burned himself to death in his palace, that his body might not fall into the hands of his enemies. For a few days the shadow of the imperial crown rested on the head of his heir Changlin, but in a tumult which broke out amongst his followers he lost his life, and with him ended the "Golden" dynasty, which from that time disappeared from the country's annals until the Manchoo family now reigning came, nearly four centuries later, to claim the throne as heirs of the defender of Joo-ning Foo.

Although China was still by no means conquered, yet the extinction of the Kin dynasty enabled Ogdai to send an army of 300,000 men to ravage the country bordering on the Caspian sea. But so vast were the resources at his command, that he was able to despatch at the same time a force 600,000 strong into Sze-chuen to subdue the power of Sung in that province. For, notwithstanding the treaty which had been made between Ogdai and Sung, no sooner were the spoils of Kin to be divided than fierce war broke out again between them, in prosecuting which the Mongol armies swept over the provinces of Hoo-kwang, Keang-nan, and Ho-nan, and were checked only when they reached the walls of Loo-chow Foo in Gan-hwuy. Ogdai was not destined to live to see his sway acknowledged over the whole empire. In 1241, he died at the age of fifty-six, having reigned thirteen years, and was nominally succeeded by his grandson Cheliemen. But among the numerous ladies who called Ogdai lord, was one named Toliekona, who on the death of the emperor took possession of the throne, and after exercising rule for four years, established her son Kwei-yew, as Great Khan. But in 1248 his life was cut short, and the nobles, disregarding the claims of Cheliemen, proclaimed as emperor Mangu, the eldest son of Too-le. Under this monarch the war against Sung was carried on with energy, and Kublai, outstripping the bounds of Sung territory, made his way into the province of Yun-nan, which at that time was divided into a number of independent states, and having attached them to his brother's crown he passed on into Tibet, Tonquin, and Cochin-China, and from thence striking northwards entered the province of Kwang-se. On the death of Mangu in 1259 Kublai ascended the throne, and never in the history of China was the nation more illustrious, nor its power more widely felt, than under his sovereignty. During the first twenty years of his reign Sung kept up a resistance, gradually growing weaker and weaker, against his authority; and it was not, therefore, until 1280 that he assumed complete jurisdiction as emperor of China. At this time his authority was acknowledged "from the Frozen sea, almost to the Straits of Malacca. With the exception of Hindustan, Arabia, and the westernmost parts of Asia, all the Mongol princes as far as the Dnieper declared themselves his vassals, and brought regularly their tribute." It was during this reign that Marco Polo visited China, and he describes in glowing colors the virtues and glories of the "Great Khan."

Though his rule was characterized by discretion and munificence, his Chinese subjects were uneasy under his yoke. He undertook public works, he patronized literature, and relieved the distress of the poor, but still they never forgot that he was an alien and a barbarian, and he died unregretted in 1294. His son had died

during his lifetime, and after some contention his grandson Timur ascended the throne under the title of Yuen-ching. After an uneventful reign this prince was gathered to his fathers in 1307, and as he left no son, Woo-tsung, a Mongol prince, reigned in his stead. To him, succeeded Jin-tsung in 1311, who made himself conspicuous by the honor he showed to the memory of Confucius, and by distributing offices more equally between Mongols and Chinese than had hitherto been done. This act of justice gave great satisfaction to the Chinese, and his death ended a peaceful and prosperous reign in 1320. Three years later,—three years of disorder,—his successor, Ying-tsung, was murdered by a band of conspirators. From this time the star of the Yuen dynasty was in the descendant. Tai-ting-te, Ming-tsung, Wǎn-te, and Shun-te followed one another on the throne in quick succession. Each reign was more troublous than the last, and in the person of Shun-te (1333-1368) were summed up all the vices and faults of his predecessors. Outbreaks, which up to his time had been local in their character, assumed large and threatening proportions; and finally this descendant of Jenghiz Khan was compelled to fly from his capital before Choo Yuen-chang, the son of a Chinese laboring man. Deserted by his followers he sought refuge in Ying-chang Foo, and there the last of the Yuen dynasty died. So disunited had the empire become by constant disturbances and rebellions, that Choo Yuen-chang met with little opposition to his forces, more especially as his first care on becoming possessed of a district was to suppress lawlessness and to establish a settled government. In 1355 he crossed the Yang-tsze Keang and captured Nan-king, in consequence of which success he proclaimed himself duke of Woo, but as yet he carefully avoided adopting any of the insignia of royalty. Even when he had taken the capital and was the master of the empire thirteen years later, he still professed to dislike the idea of assuming the imperial title. His scruples, however, on this point were overcome, and he solemnly declared himself emperor in 1368.

Once seated upon the throne, he ingratiated himself with his subjects by his generous treatment of his enemies, and by the regard he showed for the welfare of his people. He carried his arms into Tartary, where he subdued the last semblance of Mongol power in that direction, and then bent his steps towards Leaou-tung. Here the Mongols defended themselves with the bravery of despair, but nothing could resist the onslaught of the victorious Chinese, and the conquest of this province left Hung wo, as the founder of the new or Ming, "Bright," dynasty styled himself, without a foe in the empire. Beyond the frontier of China he cultivated friendly relations with the rulers of the neighboring states. The king of Corea sent an embassy to congratulate him on his accession, and the sovereign of the Lew-chew Islands sent his brothers and sons to his court to be educated. As a quondam Buddhist priest he naturally lent his countenance to that religion to the exclusion of Taouism, whose priests had for centuries earned the contempt of all but the most ignorant by their pretended magical arts and their search after the philosopher's stone. In 1398, and in the thirtieth year of his reign, Hung-woo was gathered to his fathers, and Keen-wǎn, his grandson, reigned in his stead. Aware that the appointment of this youth—his father was dead—would give offence to the young emperor's uncles, Hung-woo dismissed them to their respective governments before death closed his eyes. This, however, only delayed the storm. The prince of Yen, his eldest surviving son, raised the banner of rebellion in his principality as soon as the news reached him of his nephew's accession, and after gaining several victories

over the armies of Keen-wǎn he presented himself before the gates of Nanking, the capital. Treachery opened the gates to him, and the emperor having fled in the disguise of a monk, the victorious prince clothed himself in imperial yellow and took the title of Yung-lo (1403). At home Yung-lo devoted himself to the encouragement of literature and the fine arts, and, possibly from a knowledge that Keen-wǎn was among the Buddhist priests, he renewed the law prohibiting Buddhism. Abroad he swept Cochin-China, and Tonquin within the folds of his empire and carried his arms into Tartary, where he made new conquests of waste regions, and erected a monument of his victories. His death took place in 1425, and he was in that year succeeded by his son Hung-ke.

Hung-ke's reign was short and uneventful. He did that which was right as far as his knowledge went. He strove to promote only such mandarins as had proved themselves to be able and honest, and to further the welfare of the people. During the reign of his successor, Seuen-tih (1426-1436), the empire suffered the first loss of territory since the commencement of the dynasty. Cochin-China rebelled and gained her independence. But this was but the beginning of troubles. The next emperor, Ching-tung (1436) was defeated and taken prisoner by a Tartar chieftain, a descendant of the Yuen family named Ye-seen, who had invaded the northern provinces. With unusual clemency the Tartar gave him his life, though he kept him a close prisoner until the fortunes of war turned against him. Having been completely defeated by a Chinese force from Leaou-tung, Ye-seen liberated his captive, who returned to his capital amidst the rejoicings of the people, again to occupy the throne which during his imprisonment (1450-1457) had been held by his brother King-te. The two following reigns, those of Ching-hwa (1465-1488) and of Hung-che (1488-1506) were quiet and peaceful. But their successor Ching-tih (1506-1522) was called upon to face a very formidable insurrection headed by the prince of Ning. He was, however, victorious over the rebel, who lost 30,000 men in the engagement which put an end to his hopes. The disorder into which the empire had been thrown by this civil war encouraged the foreign enemies of China. First of all from the dreaded north came a Tartar army under Yen-ta in 1542, during the reign of Kea-tsing, which laid waste the province of Shien-se, and even threatened the capital, and a little later a Japanese fleet appeared off the coast and carried fire and sword through the littoral provinces. Ill-blood had arisen between the two peoples before this, and a Japanese colony had been driven out of Ningpo by force and not without bloodshed a few years previously. Kea-tsing was not equal to such emergencies, and his death, which took place in 1567, would have been an advantage to the empire, had his son been a more able prince. But the only weapon Lung-king (1567-1573) was able to wield against the Tartar Yen-ta was a bribe. He made him a prince of the empire, and gave him certain commercial privileges, which were further supplemented by the succeeding emperor Wan-leih (1573-1620) by a grant of land in Shen-se. During the reign of this sovereign, in the year 1592, the Japanese successfully invaded Corea, and Taikosama, the emperor of Japan, was on the point of proclaiming himself king of the peninsula, when a large Chinese force answering to the invitation of the king, appeared on the field and completely routed the Japanese army, at the same time that the Chinese fleet cut off their retreat by sea. In this extremity the Japanese sued for peace, and sent an embassy to Peking to arrange terms. But the peace was of short duration. In 1597 the Japanese again invaded Corea and defeated the Chinese army which was sent

against them, nor were they less successful at sea. They destroyed the Chinese fleet and ravaged the coast. Suddenly, however, when in the full tide of conquest, they evacuated Corea, which again fell under the direction of China. Four years later Ricci arrived at the Chinese court; and though at first the emperor was inclined to send him out of the country, his abilities gradually won for him the esteem of the sovereign and his ministers, and he remained the scientific adviser of the court until his death in 1610. About this time the power which was destined to overthrow the Ming dynasty began to grow restless. The Manchoo Tartars, goaded into war by the injustice they were constantly receiving at the hands of the Chinese, led an army into China in 1616 and completely defeated the force which was sent against them. Three years later they were again victorious over the Chinese, and they then gained possession of the province of Leaou-tung. This final series of disasters was more than the emperor could bear, and he died of a broken heart in 1620.

In the same year Teen-ning, the Manchoo sovereign, having declared himself independent, and possessed himself of Leaou-tung, moved the court to San-koo, to the east of Moukden, which, five years later, he made his capital. Meanwhile Tai-chang, the son of Wan-leih, ascended the Chinese throne, but barely had he assumed the reins of power when he fell ill. Acting on the advice of his doctors he drank of the liquor of immortality and died. The next emperor Teen-ke, after a brief and troublous reign, followed him to the grave in 1627, and to him succeeded Tsung-ching, the last emperor of the Ming dynasty. In his reign the storm-clouds, which had been collecting for some years, burst over the empire. In addition to the threatened danger on the north, rebel bands, enriched by plunder, and grown bold by success, began to assume the proportion of armies. They dominated over whole districts and provinces and paralyzed the imperial forces by their energy and daring. Out of this seething mass of insubordination two leaders showed themselves conspicuously. These were Le Tsze-ching and Shang Ko-he. In order that there should be no dispute as to which should be greatest, they decided to divide the empire between them, and to begin with, it was agreed that Shang should take possession of Szechuen and Hoo-kwang, and that Le should make himself master of Ho-nan. Bent on this mission Le besieged Kaifung Foo, the capital of the province, and so long and closely did he beleague it that in the consequent famine human flesh was regularly sold in the market. At length an imperial force came to raise the siege, with consequences as fatal to the inhabitants as if the rebels had gained the city; for, fearful of meeting Le's army in the field, they cut through the dykes of the Yellow river, "China's Sorrow," and flooded the whole country, including the city. The rebels escaped to the mountains, but upwards of 200,000 inhabitants perished in the flood, and the city became a heap of ruins (1642). From Kaifung Foo Le marched against the other strongholds of Ho-nan and Shen-se, and was so completely successful that he determined to attack Peking. A treacherous eunuch opened the gates to him, on being informed of which the emperor committed suicide. When the news of this disaster reached the general commanding on the frontier of Manchoo Tartary, he, in an unguarded moment, concluded a peace with the Manchos, and invited them to dispossess the rebel Le Tsze-ching. With ready acquiescence the Manchos entered China, and after defeating a rebel army sent against them, they marched towards Peking. On hearing of the approach of the invaders, Le Tsze-ching, after having set fire to the imperial palace, evacuated the city, but was overtaken, and his force was completely routed.

The object for which the Manchos had been introduced into the empire having now been accomplished, the Chinese wished them to retire, but, like the Mongols, having once gained a footing in the empire, they declared themselves unwilling to leave it, and having taken possession of Peking they proclaimed the ninth son of Teen-ning emperor of China under the title of Shun-che, and adopted the name of Ta-tsing, or "Great pure," for the dynasty (1644). Meanwhile the Mandarins at Nanking had chosen an imperial prince to ascend the throne. But with all the prestige of victory the Tartars bore down all opposition, and at this most inopportune moment "a claimant" to the throne, in the person of a pretended son of the last emperor, appeared at court. This additional complication still further reduced the Chinese power of acting. While this contention prevailed inside Nanking the Tartar army appeared at the walls. But there was no need for them to use force. The gates were thrown open and they took possession of the city without shedding a drop of blood. Following the conciliatory policy they had everywhere pursued, they confirmed the mandarins in their offices and granted a general amnesty to all who would lay down their arms. As the Tartars entered the city the emperor left it, and after wandering about for some days in great misery, he threw himself into the Yang-tsze Keang and was drowned. Thus ended the Ming dynasty, and the empire passed again under a foreign yoke.

All accounts agree in stating that the Manchoo conquerors are descendants of a branch of the family which gave the Kin dynasty to the north of China; and in lieu of any authentic account of their early history, native writers have thrown a cloud of fable over their origin. These tell us that in remote ages three heaven-born virgins dwelt beneath the shadow of the Great White mountains, and that while they were bathing in a lake which reflected in its bosom the snow-clad peaks which towered above it, a magpie dropped a blood-red fruit upon the clothes of the youngest. This the maiden instinctively devoured, and forthwith conceived and bore a son, whose name they called Ai-sin Ghioro, which being interpreted is the "Golden Family Stem," and which is the family name of the present emperors of China. When his mother had entered the icy cave of the dead, her son embarked on a little boat and floated down the River Hurka until he reached a district occupied by three families who were at war with each other. The personal appearance of the supernatural youth so impressed these warlike chiefs that they forgot their enmities and hailed him as their ruler. The town of O-to-le ($43^{\circ} 35' N.$ lat. and $128^{\circ} E.$ long.) was chosen as his capital, and from that day his people waxed fat, and at length, as we have seen, kicked against their oppressors, the Chinese.

This legend confirms the general belief that the original seat of the Manchos was in the valley of the Hurka, a river which flows into the Sungari in about $46^{\circ} 20' N.$ lat., and $129^{\circ} 50' E.$ long. Under a succession of able and hardy chiefs they added land to land and tribe to tribe, until, in the 16th century, we find them able to cope with, and in a position to demand favorable terms by treaty from, their Chinese neighbors. As they became more powerful their complaints became louder against acts of aggressive oppression which they laid at the door of the Mings. But who will say that the fault was all on one side? Doubtless the Mings tried to check their ambition by cruel reprisals — a mistaken policy common to oppressors who find themselves with waning powers in the presence of growing discontent. But if we are to square the account, against this must be put numerous Manchoo raids into Leaou-tung, entailing loss of life and property on the subjects of

China. And the ready rapidity with which these Manchurian horsemen swept round the corner of the Great Wall into China proper on the fatal invitation of the Chinese general shows that they were neither unwilling nor unaccustomed to wander beyond their own frontiers.

But the accession to the throne of the Emperor Shun-che did not by any means at first restore peace to the country. In Keang-se, Fuh-keen, Kwang-tung, and Kwang-se the adherents of the Ming dynasty defended themselves vigorously but unsuccessfully against the invaders, while the pirate Ching Che-tung, the father of the celebrated Koxinga, kept up a predatory warfare against them on the coast. On one occasion he was bought over to the Tartar camp and accepted a princess as a reward for his conversion, but he soon returned to his former allegiance, only, however, once again to prove himself a turn-coat. Finding him too formidable as a foe the Tartars determined again to gain his alliance. A general's command proved too tempting a bait to the buccaneer to be refused. He accepted the offer and went on shore to visit the Tartar commander, who received him with all civility. But when the pirate wished to return to his ships he was politely urged to visit Peking. Once there he was thrown into prison, where he died shortly afterwards. His son Koxinga, warned by his father's example, determined to leave the mainland and to seek an empire elsewhere. His choice fell on Formosa, and having driven the Dutch out of the island, he established himself as king and held possession of the island until the reign of Kang-he, when he resigned in favor of the Imperial Government. Meanwhile a prince of the house of Ming was proclaimed emperor in Kwang-se, under the title of Yung-leih. But the Tartars having reduced the provinces of Fuh-keen and Keang-se, and having taken Canton after a siege of eight months, marched against and so completely routed his followers that he was compelled to fly to Pegu. There he remained for some years until, believing that his adherents in Yun-nan and Kwei-chow were sufficiently numerous to justify his raising his standard in those provinces, he crossed the frontier and advanced to meet the imperial forces. On this as on the former occasion, fortune declared against him. His army was scattered to the four winds, and he was taken prisoner and strangled. Gradually opposition to the new regime became weaker and weaker, and the shaved head with the pig-tail — the symbol of Tartar sovereignty — became more and more universally adopted. In 1651 died Ama Wang, the uncle of Shun-che, who had acted as regent during his nephew's minority, and the emperor then assumed the government of the state. Little is known of this monarch. He appears to have taken a great interest in science, and to have patronized Adam Schaal, a German Jesuit, who was at that time resident at Peking. It was during his reign (1656) that the first Russian embassy arrived at the capital, but as the envoy declined to kowtow before the emperor he was sent back without having been admitted to an audience. After an unquiet reign of seventeen years Shun-che was gathered to his fathers (1661), and Kang-he, his son, reigned in his stead. This emperor was as renowned as his father had been unknown. He was indefatigable in administering the affairs of the empire, and at the same time he devoted much of his time to literary and scientific studies under the guidance of the Jesuits. The dictionary of the Chinese language, published under his superintendence, proves him to have been as great a scholar as his conquests over Eleuths shows him to have been famous as a general. During one of his hunting expeditions to Mongolia he caught a fatal cold, and he died in 1721, after a glorious reign of sixty years. Under his rule Tibet was added to the empire, which extended from

the Siberian frontier to Cochin-China, and from the China Sea to Turkestan. Almost the only national misfortune that visited China while he sat upon the throne was an earthquake at Peking, in which 400,000 people are said to have perished.

Kang-he was succeeded by Yung-ching, who, reaping the benefits of his father's vigorous administration, enjoyed a peaceable reign, though a short one. He died in 1725, and Keen-lung his son reigned in his stead. Ambitious and warlike, this monarch despised the conciliatory measures by which his father had maintained peace with his neighbors. On but a slight provocation, he marched an army into Ili, which he converted into a Chinese province, and he afterwards added Eastern Turkestan to the far-reaching territories of China. Twice he invaded Burmah, and once he penetrated into Cochin-China, but in neither country were his arms successful. He is accused of great cruelty towards his subjects, which they repaid by rebelling against him. During his reign it was that the Mahometan standard was first raised in Kansuah. But the Mussulmans were unable to stand against the imperial troops; their armies were dispersed; ten thousand of them were exiled; and, effectually to prevent a renewal of the outbreak for some years, an order was issued that every Mahometan in Kansuah above the age of fifteen should be put to death (1784). Amidst all the political calls upon his time Keen-lung still found leisure for study. He wrote incessantly, both poetry and prose, and did much to promote the cause of literature by collecting libraries and publishing works of value. His campaign furnished him with themes for his verses, and in the Summer Palace was found a handsome manuscript copy of a laudatory poem he composed on the occasion of his war against the Gorkhas. This was one of the most successful of his military undertakings. His generals marched 70,000 men into Nepaul to within sixty miles of the British frontiers, and having subjugated the Gorkhas they received the submission of the Nepaulese, and acquired an additional hold over Tibet (1792). In other directions his arms were not so successful. We find no poem commemorating the campaign against the rebellious Formosans, nor lament over the loss of 100,000 men in that island, and the last few years of his reign were disturbed by outbreaks among the Meaoutsze or hill tribes, living in the mountains in the provinces of Kwei-chow and Kwang-se. In 1795, after a reign of sixty years, Keen-lung abdicated in favor of his fifteenth son, who adopted the title of Kea-king as the style of his reign. He only lived three years in retirement, and died at the age of eighty-eight in 1798.

During the reign of Keen-lung the relations of the East India Company with his Government had been the reverse of satisfactory. All kinds of unjust exactions were demanded from the merchants, and many acts of gross injustice were committed on the persons of Englishmen. So notorious, at length, did these matters become that the British Government determined to send an embassy to the court of Peking, and Lord Macartney was chosen to represent George III. on the occasion. On arriving at Jehol, where the court then was, Lord Macartney was received most graciously by the emperor, and subsequently at Yuen-ming-yuen he was admitted into the imperial presence and was treated with every courtesy. But the concessions he sought for his countrymen were not accorded to him, and in this sense, but in this sense only, his mission was a failure.

Kea-king's reign, which extended over a period of five-and-twenty years, was disturbed and disastrous. In the northern and western provinces, rebellion after rebellion broke out, due in a great measure to the care-

lessness and incompetency of the emperor, who was as obstinately self-opinionated as he was unfit to rule, and the coasts were infested with bands of pirates, whose number and organization enabled them for a long time to hold the imperial fleet in check. But, fortunately for the Government, dissensions broke out among the pirate chiefs, and, weakened by internal fighting, they finally made their peace with the mandarins and accepted posts under the emperor. Meanwhile the condition of the foreign merchants at Canton had in no wise improved. The mandarins were as exacting and as unjust as ever, and in order to set matters on a better footing the British Government despatched a second ambassador in the person of Lord Amherst to Peking in 1816. On arriving at the mouth of the Peiho he was received by imperial commissioners who conducted him to Yuen-ming-yuen, taking every advantage on the way of pointing out to him the necessity of his performing the kowtow before the emperor if he wished to be allowed to enter the imperial presence. This he declined to do, and he was consequently dismissed from the palace on the same day on which he arrived, and thus a new impetus was given to mandarinic insolence.

Destitute of all royal qualities, a slave to his passions, and the servant of caprice, the emperor Kea-king died in the year 1820, after a reign of twenty-five years, leaving a disturbed country and a disaffected people as a legacy to his successor Taou-Kwang.

Though possessed in his early years of considerable energy Taou-kwang no sooner ascended the throne than he turned his powers, which should have been directed to the pacification of the empire, to the pursuit of pleasure and amusement. The reforms which his subjects had been led by his first manifestoes to believe would be introduced never seriously occupied his attention, and the discontent which had been lulled by hope soon became intensified by despair. In Formosa, Kwang-se, Ho nan, and other parts of the empire insurrections broke out, which the imperial generals were quite unequal to suppress by force, and the Triad Society, which had originated during the reign of Kang-he, again showed a formidable front under his degenerate successor. Meanwhile the hardships inflicted on the English merchants at Canton became so unbearable, that when, in 1834, the monopoly of the East India Company ceased, the English Government determined to send out a minister to superintend the foreign trade at that port. Lord Napier was selected for the office; but so vexatious was the conduct of the Chinese authorities, and so inadequately was he supported, that the anxieties of his position brought on an attack of fever, from which he died at Macao after but a few months' residence in China. The chief cause of complaint adduced by the mandarins was the introduction of opium by the merchants, and for years they attempted by every means in their power, by stopping all foreign trade, by demands for the prohibition of the traffic in the drug, and by vigilant preventive measures, to put a stop to its importation. At length Captain Elliot, the superintendent of trade, in 1839 agreed that all the opium in the hands of Englishmen should be given up to the native authorities, and he exacted a pledge from the merchants that they would no longer deal in the drug. On the 3d April, 20,283 chests of opium were handed over to the mandarins and were by them destroyed—a sufficient proof that they were in earnest in their endeavors to suppress the traffic. This demand of commissioner Lin was considered by the English Government to amount to a *casus belli*, and in 1840 war was declared. In the same year the fleet captured Chusan, and in the following year the Bogue Forts fell, in consequence of which operations the Chinese agreed to cede Hong-Kong to the

victors and to pay them an indemnity of \$6,000,000. As soon as this news reached Peking, Ke Shen, who had succeeded commissioner Lin, was dismissed from his post and degraded, and Yih Shan, another Tartar, was appointed in his room. But before the new commissioner reached his post, Canton had fallen into the hands of Sir Hugh Gough, and shortly afterwards Amoy, Ningpo, Tinghai in Chusan, Chapoo, Shanghai, and Chinkeang Foo shared the same fate, and a like evil would have happened to Nanking had not the Imperial Government, dreading the loss of the "Southern Capital," proposed terms of peace. After much discussion, Sir Henry Pottinger, who had succeeded Captain Elliot, concluded, in 1843, a treaty with the imperial commissioners, by which the four additional ports of Amoy, Fuh-Chow-Foo, Ningpo, and Shanghai were declared open to foreign trade, and an indemnity of \$21,000,000 was to be paid to the English. Nor was the remainder of the reign of Taou-kwang more fortunate than its beginning; the empire was completely disorganized, rebellious outbreaks were of frequent occurrence, and the imperial armies were powerless to oppose them. So complete was the demoralization of the troops, that on one occasion the Meaou-tsze or hill tribes of Kwang-se defeated an army of 30,000 men sent against them by the viceroy of the two Kwangs. In 1850, while these clouds were hanging gloomingly over the land, Taoukwang "ascended on high," and Heen-fung, his son, reigned in his stead.

A cry was now raised for the reforms which had been hoped for under Taou-kwang, but Heen-fung possessed in an exaggerated form the selfish and tyrannical nature of his father, together with a voluptuary's craving for every kind of sensual pleasure, and he lived to reap as he had sown. For some time Kwang-se had been in a very disturbed state, and when, on the accession of the new emperor, the people found that no relief from the oppression they endured was to be given them, they broke out into open revolt and proclaimed a youth, who was said to be the representative of the last emperor of the Ming dynasty, as emperor, under the title of Teen-tih or "Heavenly Virtue." From Kwang-se the flames spread into Hoo-pih and Hoo-nan, and then languished from want of a leader and a definite political cry. Just at the moment, however, when there appeared to be a possibility that, by force of arms and the persuasive influence of money, the imperialists would reestablish their supremacy, a leader presented himself in Kwang-se, whose energy of character, combined with great political and religious enthusiasm, speedily gained for him the suffrages of the discontented. This was Hung Sew-tseuen. Seizing on the popular longing for the return of a Chinese dynasty he proclaimed himself as sent by heaven to drive out the Tartars, and to restore in his own person the succession to China. At the same time having been converted to Christianity, and professing to abhor the vices and sins of the age, he called on all the virtuous of the land to extirpate rulers who, both in their public laws and in their private acts, were standing examples of all that was base and vile in human nature. Crowds soon flocked to his standard. Teen-tih was deserted; and, putting himself at the head of his followers, Hung Sew-tseuen marched northwards into Hoo-nan and Hoo-pih, overthrowing every force which was sent to oppose him. The first city of importance which fell into his hands was Woo-chang Foo on the Yang-tsze-Keang, the capital of Hoo-pih. Situated at the junction of the Han river with the Yang-tsze-Keang, this city was a point of great strategical importance. But Hung Sew-tseuen was not inclined to rest upon his laurels, knowing full well that he must be able to call Nanking his before there would be any chance that his dreams of

empire could be realized. Having made Woo-chang secure, he therefore moved down the river, and after taking Gan-king on his way he proceeded to the attack of Nanking. So wide-spread was the disaffection at this time throughout the country that the city was ripe for falling, and without much difficulty Hung Sew-tseuen in 1852 established himself within its walls, and proclaimed the inauguration of the Tai-ping dynasty, of which he nominated himself the first emperor under the title of Teen Wang or "Heavenly king."

For the next few years it appeared as though he had nailed the flag of victory to his staff. His armies penetrated victoriously as far north as Tientsin and as far east as Chin-keang and Soochow, while bands of sympathizers with their cause appeared in the neighborhood of Amoy. As if still further to aid and abet him in his schemes, England declared war against the Tartar dynasty in 1857, in consequence of an outrage known as the "Arrow" affair. In December of the same year Canton was taken by an English force under Sir Michael Seymour and General Straubenzee, and a still further blow was struck against the prestige of the ruling Government by the determination arrived at by Lord Elgin, who had been sent out as special ambassador, to go to Peking and communicate directly with the emperor.

In May, 1858, the Taku Forts were taken, and the way having thus been cleared of obstacles, Lord Elgin went up to the Peiho to Tientsin *en route* for the capital. At Tientsin, however, he was met by the imperial commissioners, who persuaded him so far to alter his plans as to conclude a treaty with them on the spot, which treaty it was agreed should be ratified at Peking in the following year. When, however, Sir Frederick Bruce, who had been in the meanwhile appointed minister to the court of Peking, attempted to pass Taku to carry out his part of the arrangement, the vessels escorting him were fired on from the forts with such precision and persistency that he was compelled to return to Shanghai to await the arrival of a larger force than that which he then had at his command. As soon as news of his defeat reached England Lord Elgin was again sent out with full powers, and accompanied by a large force under the command of Sir Hope Grant. The French likewise took part in the campaign, and on 1st August, 1860, the allies landed without meeting with any opposition at Peh-tang, a village twelve miles north of Taku. A few days later the forts at that place which had bid defiance to Sir Frederick Bruce twelve months previously were taken, and from thence the allies marched to Peking. Finding further resistance to be hopeless, the Chinese opened negotiations, and as a guarantee of their good faith surrendered the An-ting gate of the capital to the allies. On the 24th October the treaty of 1858 was ratified by Prince Kung and Lord Elgin, and a convention was signed under the terms of which the Chinese agreed to pay a war indemnity of 8,000,000 taels. The Emperor Heen-fung did not live long to see the results of his new relations with the hated foreigner, but died in the summer of the following year, leaving the throne to his son, Tung-che, a child of five years old.

The conclusion of peace with the allies was the signal for a renewal of the campaign against the Tai-pings, and benefiting by the friendly feelings of the English authorities engendered by the return of amicable relations the Chinese Government succeeded in enlisting Major Gordon of the Royal Engineers in their service. In a surprisingly short space of time this officer formed the troops, which had formerly been under the command of an American named Ward, into a formidable army, and without delay took the field against the rebels. From that day the fortunes of the Tai-pings, declined. They

lost city after city, and, finally, in July, 1864, the imperialists, after an interval of twelve years, once more gained possession of Nanking. Teen Wang did not survive the capture of his capital, and with him fell his cause. Those of his followers who escaped the sword of the victors dispersed throughout the country, and the Tai-pings ceased to be.

With the measure of peace which was then restored to the country, trade rapidly revived, and with the exception of the province of Yun-nan, where the Mohomedan rebels under Suleiman still kept the imperial forces at bay, prosperity was everywhere re-awakened. Against these foes the Government was careless to take any active measures, until in 1872 Prince Hassan, the adopted son of Suleiman, was sent on a mission to England with the object of gaining the recognition of the Queen for his father's government. This step at once aroused the susceptibilities of the Imperial Government, and a large force was instantly organized and despatched to the scene of the rebellion. The war was now pushed on with vigor, and before the year was out the Mahomedan capital, Ta-le Foo, fell into the hands of the imperialists, and the followers of Suleiman at that place and throughout the province were mercilessly exterminated. In the succeeding February the Regents—*i.e.* the dowager empresses, who had governed the country since the death of Heen-fung—resigned their powers into the hands of the emperor. This long expected time was seized upon by the foreign ministers to urge their right of audience with the emperor, and on the 29th June, 1873, the privilege of gazing on the "sacred countenance" was accorded to them. From that time until his death from small-pox on the 12th January, 1875, Tung-che's name fails to appear in connection with any public act of importance.

The Emperor Tung che having died without issue, the succession to the throne, for the first time in the annals of the Tsing dynasty, passed out of the direct line, and a cousin of the deceased emperor, a princeling, said to be not quite four years old, was chosen to reign in his stead, under the title of Kwang-seu or "Succession of Glory." Thus was the country again doomed to suffer all the inconveniences of a long imperial minority, at a time, too, when events seemed to show that the civilization of China had grown old, and like to vanish away; when the introduction of new ideas and western modes of thought was about to stretch the old bottle of Confucian tradition to its fullest extent; and when, therefore, the empire had sore need of wisdom and strength at the head of affairs to guide it safely through the critical times which lay before it.

The present imperial family, on gaining possession of the throne on the fall of the Ta-Ming, or "Great Bright" dynasty, assumed the dynastic title of Ta-Tsing, or "Great Pure," and the first emperor, who was styled She-tsu-chang Hwang-te, adopted the title of Shun-che for his reign, which began in the year 1644. The legendary progenitor of these Manchoo rulers was Aisin Gioro, whose name is said to point to the fact of his having been related to the race of Neu-chih, or Kin, *i.e.*, Golden Tartars, who reigned in Northern China during the 12th and 13th centuries. The present emperor, whose reign is styled Kwang-seu or "Succession of Glory," is the eighth from the founder of the dynasty, and is the only ruler since the establishment of the line who has not succeeded as a direct descendant. Kang-he (1661-1722), for instance, was the third son of Shun-che; Yung-ching (1722-1735) was the fourth son of Kang-he; Keen-lung (1736-1795) was the fourth son of Yung ching; Kea-king (1796-1820) was the fifteenth son of Keen-lung; Taou-Kwang (1821-1850) was the second son of Kea-king; Heen-fung (1851-1861) was the fourth

of the nine sons who were born to the Emperor Taou-kwang; and Tung-che (1862-1875) was the only son of Heen-fung. As by Chinese law the heir must be younger than the individual from whom he inherits, it became necessary when the Emperor Tung-che "became a guest in Heaven," without issue, in 1875, to select as his successor one of the sons of one of his father's younger brothers, and the choice, which was recorded in his will, fell upon the infant son of the Prince of Chun, the seventh son of the Emperor Taou-kwang.

In order to prevent the confusion which would arise among the princes of the imperial house were they each to adopt an arbitrary name, the Emperor Kang-he decreed that each of his twenty-four sons should have a personal name consisting of two characters, the first of which should be *Yung*, and the second should be compounded with the determinative *she*, "to manifest," an arrangement which would, as has been remarked, find an exact parallel in a system by which the sons in an English family might be called Louis *Edward*, Louis *Edwin*, Louis *Edwy*, Louis *Edgar*, and so on. This device obtained also in the next generation, all the princes of which had *Hung* for their first names, and the Emperor Keen-lung (1736-1795) extended it into a system, and directed that the succeeding generations should take the four characters *Yung*, *Meen*, *Yih*, and *Tsae* respectively, as the first parts of their names. Eight other characters, namely, *P'u*, *Yu*, *Heng*, *K'e*, *Taou*, *K'ai*, *Tseng*, *Ke*, were subsequently added, thus providing generic names for twelve generations. With the present generation the first four characters are exhausted, and the sons of the present emperor, should he have any, will therefore be *P'u*'s. By the ceremonial law of the "Great Pure" dynasty, twelve degrees of rank are distributed among the princes of the imperial house, and are as follows:—1, Ho-shih Tsin Wang, prince of the first order; 2, To-lo Keun Wang, prince of the second order; 3, To-lo Beileh, prince of the third order; 4, Koo-shan Beitsze, prince of the fourth order; 5 to 8, Kung, or duke (with distinctive designations); 9 to 12, Tseang-keun, general (with distinctive designations). The sons of the emperors usually receive patents of the first or second order on their reaching manhood, and on their sons is bestowed the title of *Beileh*. A *Beileh*'s sons become *Beitsze*; a *Beitsze*'s sons become *Kung*, and so on.

The Chinese language is the chief among that small class of languages which includes the Tibetan, Cochinchinese, Burmese, Korean, and Chinese, and which is usually described as monosyllabic. It is language in its most archaic form. Every word is a root, and every root is a word. It is without inflexion or even agglutination; its substantives are indeclinable, and its verbs are not to be conjugated; it is destitute of an alphabet, and finds its expression on paper in thousands of distinct symbols.

It is then a language of monosyllabic roots, which, as regards the written character, has been checked in its growth and crystallized in its most ancient form by the early occurrence of a period of great literary activity, of which the nation is proud, and to the productions of which every Chinaman even of the present day looks back as containing the true standards of literary excellence.

If we turn for a moment to the poetry of ancient Greece and Rome, we find that some of the finest effects have been produced by the power which the inflexional nature of those languages gave of transposing the position of words in a sentence, so as to give vigor and grace to the rhythm. To prove the truth of this we have only to take some striking passage, and compare it in the original with a plain straightforward translation in prose.

The idea is the same in both, but how differently it appeals to the imagination of the reader. The gem is there, but it has lost the advantage of its setting. It must now be judged by the prosaic rule of its intrinsic value, with no softening surroundings to add grace and brilliancy to its natural beauty.

But the effective weapon which was thus placed in the hands of the poets and authors of ancient Greece and Rome has been completely denied to Chinese writers. As the language is absolutely without inflection, and the grammar consists so entirely of syntax, no word can be moved out of its determined position in a sentence without either changing its value or rendering it meaningless. Thus the literature has lost much of the variety and elegance which belongs by nature to that of the polysyllabic languages. And we might go beyond this and say that the lack of that power of expression which is given by syntactical motion has been accompanied by a blighting influence on the imagination of Chinese authors. Other causes, to which reference will presently be made, are also to some extent responsible for this result; but in our review of the various branches of Chinese literature, we shall find that those which are most dependent for their successful development on the powers of imagination are those which least repay attention, and the more excellent are those which contain simple narrations of facts, or consist of the arguments of the philosopher or of the man of science.

But notwithstanding this the Chinese are eminently a literary, in the sense of a reading, people. The system of making competitive examinations the only royal road to posts of honor and emolument, and the law which throws these open to everybody who chooses to compete, have caused a wider diffusion of book learning among the Chinese than is probably to be found among any other people. As to the date when the literature first took its rise, it is impossible to speak with any certainty. The vicissitudes which attended the early manuscripts and books which were collected by private individuals and in the imperial libraries have been such as to render the preservation of any ancient record a matter of wonder. Constant references are found in books to works which are said to have existed at early dates, but of many of these the titles are all that remain to us now.

One of the earliest published works on which we can lay our hands is the *Book of Changes*, the first, and the most revered, because the least understood, of the nine classics. This work first saw the light within a prison's walls. In the year 1150 B.C. its author Wán Wang was, we are told, imprisoned for a political offence, and sought to while away the tedium of his confinement by tracing out a system of general philosophy from the eight diagrams and their 64 combinations invented by the Emperor Fu-he. These diagrams have been likened to the mystical numbers of Pythagoras, and the leading idea of Wán Wang's system seems to have been founded upon the Chinese notions of the creation of the world, according to which all material things proceed from two great male and female vivifying elements, the *Yin* and the *Yang*, which in their turn owe their existence to the *Tai keih*, or the first great cause. As Sir John Davis says, this "might, with no great impropriety, be styled a sequel system of the universe. They, that is to say the Chinese, maintain that when from the union of the *Yang* and the *Yin* all existences, both animate and inanimate, had been produced, the sexual principle was conveyed to and became inherent in all of them. Thus heaven, the sun, day, &c., are considered of the male gender; earth, the moon, night, &c., of the female. This notion pervades every department of knowledge in China. It exists in their theories of anatomy and medicine, and is constantly referred to on every subject.

The chief divinities worshipped by the emperor as high priest of the state religion are heaven and earth, which in this sense appear to answer in some degree to the *ὐρανός* and *γη* in the cosmogony of the Greeks."

The style and matter of Wǎn Wang's writings were, however, so cramped and vague that Confucius among others attempted the task of elucidating their dark places. Many years the sage spent in endeavors to make straight that which was so crooked; and the only result attained has been to add some inexplicable chapters to an incomprehensible book. But the fact that it gave rise to a system of divination saved it from sharing the fate which, in the year 221 B.C., befell all books except those on medicine, divination, and husbandry, at the hand of the Emperor Che Hwang-ti of the Tsin dynasty. This monarch ordered, for political reasons, the destruction of all the books to be found within the empire, except those on the subjects just mentioned. Fortunately, no monarch, however powerful, is able to carry out to the letter an order of so inquisitorial a nature; and the roofs of houses, the walls of dwellings, and even the beds of rivers, became the receptacles of the literary treasures of the nation until the tyranny was overpast. The works of Confucius, the *Book of History*, the *Book of Odes*, the *Spring and Autumn Annals*, together with the *Book of Rites*, and the *Four Books* by the disciples of the sage and of Mencius, were all alike condemned to the flames. How all these were preserved we know not, but history tells us that, when in after years efforts were made to restore the *Book of History*, 28 sections out of the 100 composing the entire work were taken down from the lips of a blind man who had treasured them in his memory. One other was recovered from a young girl in the province of Honan. And these are all which would probably have come down to us, had not a complete copy been found secreted in the wall of Confucius's house, when it was pulled down in the year 140 B.C.

This *Book of History* takes us back to about the time of Noah. It consists of a number of records of the Yu, Hea, Shang, and Chow dynasties, embracing the period from the middle of the 24th century B.C. to 721 B.C. These, and a number of other MSS., attracted the attention of Confucius when he was at the court of Chow, and selecting those which he deemed of value, he compiled them in a work which he called the *Shoo king* or *Book of History*.

This work, as Mr. Wells Williams says, "contains the seeds of all things that are valuable in the estimation of the Chinese; it is at once the foundation of their political system, their history, and their religious rites, the basis of their tactics, music, and astronomy." For the most part it consists of conversations between the kings and their ministers, in which are traced out the same patriarchal principles of government as guide the rulers of the empire at the present day. "Virtue," said the minister Yih, addressing the emperor, "is the basis of good government; and this consists first in procuring for the people the things necessary for their sustenance, such as water, fire, metals, wood, and grain. The ruler must also think of rendering them virtuous, and of preserving them from whatever can injure life and health. When you would caution them, use gentle words, when you would correct, employ authority." "Do not be ashamed of mistakes, and thus make them crimes," was another piece of wholesome advice offered to the emperor by his advisers, the effect of which is still observable in the outspoken confessions of official incompetence which are daily to be met with in the columns of the *Peking Gazette*.

As we shall have occasion at a subsequent stage to treat at some length of the compilation which stands

next on the list of the classics,—the *Book of Odes*,—we pass on to mention a work whose dicta have entered into the very marrow of Chinese life—namely the *Le ke*, or *Book of Rites*. This work is said to have been compiled by the duke of Chow in the 12th century B.C., since which time it has ever been the guide and rule by which Chinamen have regulated all the actions and relations of their lives. No every-day ceremony is too insignificant to escape notice, and no social and domestic duty is considered to be beyond its scope. From the nature of its contents, therefore, it is the work of all the classics which has left the most palpable impression on the manners and customs of the people. Its rules are minutely observed at the present day, and one of the six governing boards at Peking—the Board of Rites—is entirely concerned with seeing that its precepts are carried out throughout the empire.

Speaking of this work, Callery says with justice, "In ceremonial is summed up the whole soul of the Chinese, and to my mind the *Book of Rites* is the most exact and complete monograph that this nation can give of itself to the rest of the world. Its affections, if it has any, are satisfied by ceremonial; its duties are fulfilled by means of ceremonial. Its virtues and vices are recognized by ceremonial; the natural relations of created beings are essentially connected with ceremonial; in a word, for it ceremonial is man, the man moral, the man politic, and the man religious, in their numberless relations with the family, society, the state, morality, and religion."

But though each and all of the classics bear to some extent the impress of Confucius, only one, the *Chun Tsew*, or *Spring and Autumn Annals*, was written by him. At first sight, therefore, a more than unusual interest attaches to this book, which is not lessened by the statements made by the sage himself, and by contemporary scholars concerning it. "The world," says Mencius, "was fallen into decay, and right principles had dwindled away. Perverse discourses and oppressive deeds were again waxen rife. Cases were occurring of ministers who murdered their rulers, and of sons who murdered their fathers. Confucius was afraid, and made the *Chun tsew*." As soon as it appeared, we are told that rebellious ministers quaked with fear and undutiful sons were overcome with terror. "Its righteous decisions," said Confucius himself, "I ventured to make."

The title also of the book, we are told, was given it, because its commendations were life-giving like spring, and its censures life-withering like autumn. The expectant student might therefore be excused for anticipating in its pages an intellectual treat. He would look to have the history of the period dealt with treated as a sustained narrative, interspersed with sage reflections and deep analyses of the characters and circumstances of the time. He would expect to find praise and blame distributed with a discriminating pen, and the foul crimes of regicide and murder denounced in impassioned outbursts of indignation. But how different is the book when we take it up! In the words of Dr. Legge—"Instead of a history of events woven artistically together, we find a congeries of the briefest possible intimations of matters in which the court and state of Loo were more or less concerned, extending over 242 years, without the slightest tincture of literary ability in the composition, or the slightest indication of judicial opinion on the part of the writer. The paragraphs are always brief. Each one is designed to commemorate a fact; but whether that fact be a display of virtue calculated to command our admiration, or a deed of atrocity fitted to awaken our disgust, it can hardly be said that there is anything in the language to convey to us the shadow

of an idea of the author's feeling about it. The notices, for we cannot call them narratives, are absolutely unimpassioned. A base murder and a shining act of heroism are chronicled just as the eclipses of the sun are chronicled. So and so took place; that is all. No details are given; no judgment is expressed."

The following extract from the annals of a year taken at random will be sufficient to show that Dr. Legge's remarks are well founded. "1. In the 15th year in spring the duke went to Tse. 2. A body of men from Tsoo invaded Seu. 3. In the third month the duke had a meeting with the marquis of Tse and others, when they made a covenant in Mow-Kew, and then went on to Kwang. 4. Kung-sun Gaon led a force and, with the great officers of the other princes, endeavored to relieve Seu. 5. In summer in the 5th month the sun was eclipsed. 6. In autumn in the 7th month an army of Tse and an army of Tsoo invaded Le. 7. In the 8th month there were locusts. 8. The duke's daughter went to her home at Tsang. 9. On Ke-mao, the last day of the moon, the temple of E-pih was struck by lightning. 10. In winter a body of men from Sung invaded Tsaou." And so on page after page.

Having thus reviewed the *Five Classics*, we will now briefly consider the *Four Books* which, together with those just mentioned, make up the full complement of the *Nine Classics*. The first three of them—the *Ta-ho* or *Great Learning*, the *Chung-yung* or the *Doctrine of the Mean*, and *Lun-yu* or *Confucian Analects*—are all by the pupils and followers of the sage; while the fourth, the *Mêng-tsze*, or the *Works of Mencius*, is by a disciple of that philosopher. All these, therefore, represent the views of Confucius, and if we ask what those views point to, we find that they may be briefly summed up in the admonition: "Walk in the trodden paths." For as Confucius said of himself, he came not to originate but to fulfil, and the primary object of his teaching was to revive in a dissolute age the purity, or supposed purity, of former generations; to quote against the *roués* of his days the examples of the ancients, whom he believed to have been scrupulous in fulfilling the universal obligations existing between sovereign and minister, between father and son, between husband and wife, and between friend and friend. He taught that man was a microcosm, and that by striving to improve himself by acquiring knowledge, by purifying his thoughts, by rectifying his heart, and by cultivating his person, he would then be able to regulate his family. When he could regulate his family, he might then be able to govern a state; and when he could govern a state, he might then be trusted to rule an empire. The empire was as one family; and as it was the part of the emperor to cherish and guard his people as a father does his child, so it was the duty of the people to render willing and submissive obedience to their sovereign.

It is due to these political opinions that Confucius has become such an object of respect to both rulers and the ruled. The former see in his teaching a ready argument for the maintenance of their authority, and the people, believing that heaven has constituted for them rulers and teachers, whose duty it is to extend favor and maintain tranquillity throughout the empire, have at the same time learnt to hold that when the ruler ceases to be a minister of God for good, he forfeits the title by which he holds the throne. Confucius was ambitious, and was a courtier as well as philosopher, and beyond this point he avoided in any shape or way indicating the manner in which an oppressive ruler should be induced to abdicate. No such consideration influenced his disciple Mencius, who, being superior to the ordinary ambitions of man, was superior also to their common timidity, and who with much boldness of utterance freely

taught that the people were the most important element in a nation, and the sovereign was the lightest; and he did not scruple to admit the conclusion that an iniquitous ruler should be dethroned, and, if circumstances required it, that he should be put to death.

The *Confucian Analects* and the *Works of Mencius* differ in their construction from the *Great Learning* and the *Doctrine of the Mean*, both of which are continuous treatises by individual authors; whereas the two first named are records of the sayings and doings of the two sages, compiled from memory by their faithful disciples, and somewhat resemble in construction, but at a vast interval, the plan of the Gospel narrative.

We have dwelt at some length on the classics, because, since they are the sacred books of China, it is natural to suppose that in them we may find the mainspring of the national literature. Unfortunately, to some extent this is the case, and Confucius has much to answer for, both as regards his teaching and the literary model he bequeathed to his countrymen. Instead of encouraging his disciples to think for themselves, to look into their own hearts, and to acquire that personal knowledge that enables a man to stand alone, he led them out both by precept and example into the dreary waste of cold formalism, in which all individuality is lost, and all force and individuality of thinking is crushed out. It may be said that, as far as his teachings were concerned, he strove to suit his system to the capacity of his audience; and that he was successful in so doing is proved by the fact that for twenty-two centuries his name has been revered and his precepts have been followed by his countrymen of whatever rank and station in life.

Estimating the traditions of the past to be almost as potent as Confucius had supposed, and for that very reason deeming them as dangerous to the existence of his rule as Confucius had considered them to be beneficial to the empire, he determined to break with them once and forever. He therefore issued an order that all books should be burned, except those containing records of his own reign; that all who dared to speak together about the *Book of Odes* or the *Book of History* (harmless subjects enough, one would think) should be put to death, and their bodies exposed in the market-place; that those who should make mention of the past, so as to blame the present, should be put to death along with their relatives; and that anyone possessing a book after the lapse of thirty days from the issuing of the ordinance should be branded and sent to labor on the Great Wall for four years. The publication of this edict was followed shortly afterwards by an order for the execution of upwards of 460 scholars who had failed to obey the mandate of the emperor.

Curiously enough it was during the reign of this uncompromising enemy to literature that the brush-pencil as at present used in China for writing purposes, was invented,—an invention which implies that about this time a substitute was found for the bamboo tablets which had up to that period served the purposes of paper. At first this new material was a kind of closely woven silk. But this was soon found to be as unsuitable for general purposes from its expense as the tablets had been from their cumbrousness; and shortly after the establishment of the Han dynasty, when the decrees of the Che Hwang-ti were reversed and every encouragement was given by the state to men of letters, the Marquis Tsae "invented the manufacture of paper from the inner bark of trees, ends of hemp, old rags, and fishing-nets." The increased facility thus afforded for the multiplication of books was eagerly taken advantage of; and from the Annals of the Han dynasty, 206 B.C. to 25 A.D., we learn that the imperial library of that reigning house consisted of 3123 sections on the

classics, 2705 on philosophy, 1318 of poetry, 790 on military affairs, 2528 on mathematics, and 868 on medicine. But at the end of the second century an insurrection, which brought the Han dynasty to a close, gave another check to the growing literary taste. And though the then reigning emperor, in his flight from his capital at Lo-yang, attempted to carry off the contents of the imperial library, only half the books reached their destination at Chang-gan, and the remnant was shortly after given to the flames by the successful revolutionists.

Such as had been the course of literature up to this time, so it continued until the close of the 6th century, when the art of printing, which became known in Europe nearly 900 years later, was invented in China. A well-known Chinese Encyclopædia tells us that on the 8th day of the 12th month of the 13th year of the reign of Wăn-ti (593 A.D.), it was ordained by a decree that the various texts in circulation should be collected, and should be engraved on wood, to be printed and published. Thus within a few years of the time when St. Augustine brought the enlightening influence of Christianity to these Isles, the art of printing—a civilizing agency second only to Christianity—was made known in China. But at first comparatively little use seems to have been made of the invention, for we are told that though it made some way during the Tang (618-907) and the five following dynasties (907-960), it only arrived at its full development under the Sung dynasty (960-1127). It was during this last epoch that a further improvement was made in the art by the introduction of movable types, by a blacksmith named Pe Ching. This inventor, writes M. Julien, used to take a paste of fine and glutinous clay, and make of it regular plates of the thickness of a piece of money, on which he engraved the characters. For each character he made a type, which he hardened at the fire. He then placed an iron plate on the table, and covered it with a cement composed of resin, wax, and lime. When he wanted to print, he took an iron frame divided by perpendicular threads of the same metal, and placing it on the iron plate, ranged his types in it. The plate was then held near the fire, and when the cement was sufficiently melted, a wooden board was pressed tightly upon it, so as to render the surface of the type perfectly even. This method was neither convenient nor expeditious, so says a Chinese writer, when only a few copies of a book were to be printed; but when a large number were required, it printed them off at a prodigious speed.

At this and at later periods the art of printing has been turned to no better purpose in China than the publication of the histories of the various dynasties. Debarred both by the nature of the material at their command and by a lack of original genius from indulging in the higher branches of imaginative writing, Chinese authors have devoted themselves with untiring energy and with very considerable ability to the compilation of information concerning the physical and political features of their own and the neighboring countries. Each dynasty has its official chronicle of these subjects, and the celebrated collection of twenty-one histories, which forms a well-nigh unbroken record of the nation's annals, by contemporary authors, from the 3d century B.C. down to the middle of the 17th century, forms a notable monument of the indefatigable industry of their authors. The edition of this huge work which stands on the shelves of the Chinese library at the British Museum is contained in sixty-six European-bound volumes of folio size. In order to facilitate the process of reference the different histories of which it is composed, though they vary considerably in extent, are all formed on the same model. First in order come the Imperial Records,

which consist of the purely political events which occurred in each reign; then follow the Memoirs, including articles on mathematical chronology, rites, music, jurisprudence, political economy, state sacrifices, astronomy, elemental influences, geography, literature, biographies, and records of the neighboring countries.

It would not be dealing fairly by Chinese literature were we to leave this part of our subject without referring to the historical and literary encyclopædias which form so very notable a feature in every library throughout the country. The best known of these compilations, and the one which may be taken as a specimen of the class, is the *Wăn heen tung kaou*, by Ma Twan-lin. This work has been more largely drawn upon by European authors than has any other Chinese book of reference, and those who are best acquainted with it are those who speak most highly in its praise.

In China, as elsewhere, the first development of literary talent is found in poetry. The songs and ballads which form the *Book of Odes*, already spoken of, date back to a time long antecedent to the production of any works of which we have knowledge. In those early days, before China was China, the then empire was divided into a number of feudal states, all of which, however, acknowledged fealty to the ruling sovereign, at whose court were a number of music-masters and historiographers, whose duty it was to collect and set to music the songs of the people, and to preserve the historical records of the empire. Through most of them there breathe a quiet calm and patriarchal simplicity of thought and life. There are few sounds of war, little tumult of the camp, but, on the contrary, a spirit of peaceful repose, of family love, and of religious feeling. We have brought before the mind's eye the lowly cottage, where dwell a family united by the bonds of affection and of duty. Their food is the produce of the soil and the spoils of the chase. The highest ambition of the men is to excel as archers and charioteers, and their religious worship is the same as that which, untainted by Buddhism or any other form of philosophical teaching, is now practiced at the imperial temples of heaven and earth, by the emperor only as high priest. Their wives are objects of affection and respect, and though in one song we find the belief expressed that "a wise woman will ruin a city," yet there seems to have been abundance of regard for honest housewives who did their duty, who shared the toils of their husbands, and enjoyed with them the simple pleasures within their reach.

It is true that now and again we meet with traces of scenes of revelry bordering on licentiousness; but their idyllic surroundings, and the absence of all violence, deprive the most dissolute descriptions of all vulgarity and coarseness. More serious by far are the wailing complaints of misrule and tyranny under which the subjects of certain princes groan. But even here there are no signs of insubordination or tumult; the remedy which suggests itself to a people patient and long-suffering to a degree is to emigrate beyond the reach of the tyrant, not to rise in rebellion against him.

Of epic poetry the Chinese know nothing, and this need not surprise us when we remember how entirely that style of writing was an importation from Greece into Western Europe; and Voltaire tells us that, when he was thinking of publishing the *Henriade*, he consulted a friend on the subject, who recommended him to give up the undertaking, "for," said he, "the French have not epic heads." Neither have the Chinese. A sustained effort of imagination is difficult to them, and the strict laws of rhyme and metre which hamper the poet would make a lengthened poem in Chinese the work of a lifetime. It is probably due to this cause that the

literature shows no instance of real dramatic poetry. Their dramas abound with short lyrical pieces, which are introduced to break the monotony of the dialogue; but dramas in verse are unknown, except in the case of low plays written in vulgar rhythm. As, however, love for the drama is one of the most noticeable features of the Chinese character, every encouragement has been given to playwrights, and this branch of literature is therefore well supplied both as regards matter and bulk. The most celebrated plays are contained in a collection entitled *The Hundred Plays of the Yuen Dynasty*, many of which have been translated into European languages, and one of which, *the Orphan of Chaou*, served as the groundwork of Voltaire's tragedy, *L'Orphelin de la Chine*. Their dramas are divided in the playbooks into acts, generally four or five, but as there is an absence of all scenery, and as the dresses are never changed during the piece, the acting is as a rule continuous throughout without break or interval. The stage directions are given in their books as in ours, but not with the same minuteness. "Enter" and "exit" are expressed by "ascend" and "descend," and "aside," by "turn the back and say." By the rules of the Chinese, as was the case also in the Greek drama, only two players are allowed to have possession of the stage at any one time. This and the absence of all scenery, obliges the dramatists to put in the mouths of the actors long pieces of spoken narrative, much after the manner of the prologues in the plays of Euripides, which appear tame and heavy to a European spectator accustomed to have the plot and locality explained by dialogue and scenery. The plots are for the most part simple and well sustained. The unities, though sometimes observed, are more often disregarded, especially that of place, the characters being frequently sent to different parts of the country in the same act, and made to inform the audience of their whereabouts by the simple expedient of walking up and down the stage, and exclaiming, "Now I am at such and such a place," or "at such and such a house." The acting, generally speaking, is good. The Chinese are actors by nature, and are no doubt a good deal improved by their inherent cunning and want of sincerity, which make them quick of observation and fertile in resource, and in every-day life enable them easily to catch the tone of those with whom they associate, and on the stage to assume the characters they wish to represent.

The government may be described as a patriarchal despotism. The emperor is the father of his people, and as a father is responsible for the training and behavior of his children, receiving blame when they prove unworthy, and reward when they show themselves to be virtuous; so is the people's welfare the emperor's first care, and their preservation from all harm, both moral and physical, his first duty. When the people become unruly the emperor views their conduct as the result of his own negligence or want of wisdom, and when peace prevails he accepts it as the consequence of his fatherly solicitude and care. Like a father, also, he holds autocratic sway over his household,—the empire. In his hand lies the power of life and death. Whom he will he slays, and whom he will he keeps alive. But there is a limit to his absolutism. The duties attaching to the relations existing between emperor and people are reciprocal; and, while it is the duty of the subject to render willing and submissive obedience to the sovereign so long as his rule is just and beneficial, it is also incumbent on him to resist his authority so soon as he ceases to be a minister of God for good. This sacred right of rebellion was distinctly taught by Confucius, and was emphasized by Mencius, who went the length of asserting that a ruler who, by the practice of injustice and

oppression, had forfeited his right to rule, should not only be dethroned, but might, if circumstances required it, be put to death.

The whole theory of government is the embodiment of parental and filial piety. As the people are the children of the emperor, so is he the *Teen-tsze* or the Son of Heaven; and standing in this intermediary position, it pertains to him, and to him alone, to mediate between his father, Heaven, and his children, his subjects.

But though occupying the lofty position described, the power wielded by the emperor of China is circumscribed by ceremonial laws and hampered by precedents. His whole life is one continual round of ceremonial observances. From the day on which he ascends the throne to the time when he is carried to his tomb in the Eastern Hills, his hours and almost minutes have special duties appointed to them by the Board of Rites. He never leaves his palace except on state occasions, and every relaxation from the cares of sovereignty must therefore be found within its walls. It is thus that the temptations of harem life have been the ruin of so many emperors, and it is rarely the case that such sovereigns are to be met with as Kang-he and Keen-lung, who reigned in the last two centuries, and each of whom devoted the sixty years of his reign to the high duties of his position and to the charms of literary pursuits.

In all affairs of state the emperor is assisted in his deliberations by the *Nuy ko*, or privy council, which, according to the regulations of the present dynasty, consists of nine Manchos and seven Chinamen; and the administrative departments are presided over by six boards, namely, the Board of War, the Board of Punishments, the Board of Office, the Board of Ceremonies, the Board of Revenue, and the Board of Works.

The provincial governments are mainly self-governed. Each province (in a few cases, two conjointly) is presided over by a viceroy, who is supreme within his jurisdiction, and who has, in cases of emergency, the power of life and death in his hands. Next to him comes the governor, whose authority in all matters relating to the province is second only to that of the viceroy. After these two officials the treasurer holds the highest rank. He controls the finances of the whole province, receiving the taxes and paying the salaries of the mandarins. The judge, the salt commissioner, and the grain collector are the only other mandarins whose authority extends over the whole province, the remaining officials being charged with the government of the various departments into which the provinces are divided.

Theoretically, the system of government in the provinces is excellent, but as a matter of fact it is corrupt to the core. Several causes have tended to bring about this disastrous state of things. In the first place, the mandarins, even when they receive their salaries, which is by no means always the case, are so wretchedly underpaid that the money they receive from this source is barely sufficient to support the staff which it is necessary for them to maintain. The consequence is that, as few mandarins have private means, they are obliged to supplement their official incomes by illegal exactions and bribes. And this evil is further heightened by the regulation which forbids that a mandarin should hold any office for more than three years. It becomes the selfish interest, therefore, of every office-holder to get as much out of the people within his jurisdiction as he possibly can in that time. The instant he arrives at his post it is customary for all the subordinate officials to pay their respects to him, on which occasion they are expected to display their loyalty by offering presents of more or less value according to the means at their command. No subaltern dare absent himself, being perfectly aware that

such an omission of duty would deprive him of all hope of promotion, and would subject him on the slightest pretence, or even without any pretence whatever, to official persecution and ruin. Then, again, when a suitor comes with a legal cause to the Yamun, or mandarin's office, he is obliged to fee the mandarin, and all the subordinate officials, the secretary, the police, and the door-keeper, in proportion to his wealth, or otherwise his chance of gaining a hearing would be very small indeed. In a great many cases also the bribery goes beyond the preliminary fee. In a commonwealth where illegal exactions are recognized, it would be impossible to suppose that the stream of justice should be pure, and a limited acquaintance with the practice of Chinese Yamuns is enough to verify the common belief that justice is bought and sold, and that a suitor's chance of success is in proportion to his wealth.

As may be readily imagined, this corruption in high places has a most demoralizing effect on the people generally. Dishonesty prevails to a frightful extent, and with it, of course, untruthfulness. The Chinese set little or no value upon truth, and thus some slight excuse is afforded for the use of torture in their courts of justice; for it is argued that where the value of an oath is not understood, some other means must be resorted to to extract evidence, and the readiest means to hand is doubtless torture. The kind most commonly inflicted is flogging. The obdurate witness is laid flat on his face, and the executioner delivers his blows on the upper part of the thighs with the concave side of a split bamboo, the sharp edges of which mutilate the sufferer terribly. The punishment is continued until the man either supplies the evidence required or becomes insensible. Numberless other forms of torture are occasionally resorted to, such as tying the witness up to a beam by his thumbs and big toes, squeezing his fingers between pieces of bamboo, &c.; and these, of course, vary both in kind and severity, according to the disposition of the presiding mandarin. Theoretically every safeguard is adopted to secure for the public service only officers of enlightened and refined dispositions. The law ordains that every man who wishes to obtain Government employment must qualify himself for office by passing the prescribed competitive examinations; and as there is, speaking generally, no hereditary nobility nor any class equivalent to English country gentlemen, office supplies the only distinguishing rank in the empire. The consequence is that it is sought after by all except those who engage in trade. Thus the Government has the cream of the national talent at its disposal, and if posts were only given to the foremost men at the examinations as the law provides, no system could be better, and when it has been carried out China has reaped the benefits of it. Unfortunately, however, it has constantly happened that when the Government has been embarrassed by want of money, offices have been put up for sale, and thus the man who has the longest purse steps into the post of honor; and if, as must often happen, he should chance to be cruel as well as uncultured, unjust as well as ignorant, woe betide the people under him. One great defect in the competitive system in China is that there is no limit to the number of candidates, nor to the age when they may go up for examination, and the result is that, what with the surplus victors and the unsuccessful aspirants who go on trying year after year until they become gray-haired old men, there exists a large non-producing class in the community which acts as a dead weight on the national prosperity.

It is only natural to expect that in a country where the torture of witnesses is permitted, the punishment inflicted on the guilty should exceed in cruelty, and this is eminently the case in China. The Mongolian race is

confessedly obtuse-nerved and insensible to suffering, and no doubt Chinese culprits do not suffer nearly as much as members of more sensitive races would under similar treatment. But even granting this, the refined cruelties perpetrated by Chinamen on Chinamen admit of no apology. Not long since, for instance, at one of the Treaty Ports, an offender was placed in a cage, through the top of which his head protruded, and which was just long enough to allow the tips of his toes to touch the ground. In this position, hanging as it were by his neck, with just enough support from his feet to prevent his neck dislocating, the wretched man remained for days, the object of the jeers and laughter of the passers by, until starvation and exhaustion put an end to his sufferings. As punishments for heinous offences such cruelties would be sufficiently shocking, but the fact that this and kindred tortures are not infrequently inflicted for very insignificant crimes, and sometimes even to gratify the malice or the greed of the officiating mandarin, is significant of a strangely callous indifference in the Chinese nature to the sufferings of others. For capital offences the usual modes of inflicting the extreme penalty of the law are—in bad cases, such as parricides, “cutting to pieces,” and for less aggravated crimes either strangulation or decapitation. The culprit who is condemned to be “cut to pieces” is fastened to a cross, and while thus suspended cuts are made by the executioner on the fleshy parts of the body, and he is then beheaded. Strangulation is reserved for offenders of high rank, it being considered a privilege to pass out of life with a whole body. When it has been granted to a criminal thus to meet his end, a silken cord is sent to him in prison. No explanatory message is considered necessary, and he is left to consummate his own doom. Sometimes, of course, the prisoner's nerve forsakes him at the supreme moment, as was the case with a prince of the blood, who in 1861 was presented with a silken cord for treason. This imperial personage could not make up his mind to be his own executioner, and it became necessary to call in the jailers to carry out the sentence of the law. Decapitation in China is a very speedy death, and were it not that popular sentiment regards it as a peculiarly disgraceful end, it would be a very merciful one. Constant practice makes the executioners wonderfully expert in the performance of their deadly office. No block or resting-place for the head is used. The neck is simply outstretched to its full length by the aid of an assistant, and one blow invariably leaves the body headless.

But side by side with all these horrors there is a vast deal of quiet, happy, domestic life in China. It is not every one who gets into the clutches of the mandarins and their satellites, and as long as a man is loyal to the powers that be, and is not over rich, he may expect to be left alone in undisturbed enjoyment of the pleasures within his reach. And in the ordering of a Chinese household there is much that might be imitated with advantage by European families. The duty of filial piety, which is the final object of Chinese religious teaching, represents much more than the ceremonial observances which outwardly mark its performance. The reverence with which children are taught to regard their parents fosters the affection of which this reverence is the outward and visible sign, and the peace of each household is assured by the presence of a supreme authority, against whose dicta there is no appeal. Although sons very generally remain under their father's roofs after they are married and have themselves become fathers, yet so impossible would it be for a young Chinaman to rebel against, or even to dispute with, his parents that difficulties seldom arise from this close association of several generations. The patriarchal sys-

tem of family life is dear to the heart of every Chinaman, and when his time comes to die, death loses to him half its terrors if he is assured that his sons will be present at his tomb to perform the customary rites and to offer the prescribed sacrifices. It is his belief that the peace of his soul depends on the due celebration of these posthumous observances, and if he has no son present to officiate, to whom can he look for the performance of them?

It is mainly due to this cause that early marriages are almost universal in China. Like the Jews of old, the Chinese look upon the possession of children, especially of sons, as the chief blessing of life, and consequently as soon as a young man comes of age his parents cast about to find a helpmeet for him. The would-be bridegroom has very little to say in the matter. Marriage is not the result of acquaintanceship ripening into affection, as amongst Western nations. The bridegroom rarely sees his betrothed until she has become his wife. The preliminaries are entirely arranged by a professional "go-between" or "match-maker," who makes it her duty to acquaint herself with all the marriageable young people of both sexes in the neighborhood.

Like many other apparent paradoxes, the co-existence of infanticide with an universal desire for children among the Chinese admits of a ready explanation. The chief object of desire is the possession of sons, and in the parts of the country where infanticide exists—and this is the case only in poverty-stricken households in certain districts of certain provinces—female infants are the only victims. In some parts of the province of Fuh-keen the people make no attempt to conceal the existence of the practice, and even go the length of defending it. What is the good of rearing daughters? they say; when they are young they are only an expense, and when they reach an age when they might be able to work for their own living, they marry and leave us. But even the poorest people nourish and cherish their sons. Their labor soon becomes remunerative, they support their parents in their old age, and when these are gathered to their fathers they perform the prescribed observances at their tombs,—offering sacrifices at fixed periods to the souls of the departed, and keeping the tombs in repair.

The principal religions of China are Buddhism, Taouism, and Confucianism, to which must be added Mohammedanism in the northern and western provinces of the empire. Buddhism was introduced from India during the 1st century of the Christian era; and thus coming at a time when the national mind had been prepared by the teachings of Confucius and the mysticisms of Laoutsze for the reception of a religious system which should satisfy the requirements of its higher nature, the new faith spread rapidly through the country, and at the present day numbers more adherents than either of the other two leading religions.

Turning to the every-day customs and manners of the Chinese, it is passing strange to find how diametrically opposed they are to what we are familiar with. In a country "where," as has been said by Wingrove Cook, "the roses have no fragrance, and the women no petticoats; where the laborer has no Sabbath, and the magistrate no sense of honor; where the needle points to the south, and the sign of being puzzled is to scratch the antipodes of the head; where the place of honor is on the left hand, and the seat of intellect is in the stomach; where to take off your hat is an insolent gesture, and to wear white garments is to put yourself into mourning," it would at first sight seem useless to seek for any point of similarity with ourselves. But it is extremely probable, for instance, that the choice of the left as the seat of honor is in principle entirely at one with our custom

of considering the right hand as the place due to the most highly-honored guest, and that both are survivals of the ancient and almost universal adoration of the sun. The needle of the Chinese compass points towards the south, and every house in China of any pretensions faces the same way, as well as the state seats in all reception rooms. The place on the left of the host, therefore, is the nearest to the light-bringing, life-producing East, and hence its title to honor; and in the same way the opposite custom among ourselves is susceptible of a like interpretation. In daily life the Chinese are frugal, sober, and industrious. Their wants are few, and they are easily satisfied. The poorer classes live almost entirely on rice and vegetables, to which they sometimes add small pieces of fish or meat. Their clothes are of the cheapest kind, and they are so accustomed to crowded apartments that house rent forms an insignificant item in a Chinaman's expenditure. Thus a Chinaman can live where a European would starve, and it is on account of the advantages which he thus possesses, combined with sobriety and frugality, that he is able to underbid the American workmen in California, and the English colonist in Australia, in almost every branch of industry.

The over-populated condition in which China has been for so many centuries has had a powerful influence in thus molding the national character. Vast as China is, it cannot contain all those who call themselves her sons and daughters, and in many cities a large section of the inhabitants are driven to live in boats on the neighboring rivers and lakes. It would be very difficult to say how the boat population provide food for themselves and their families; indeed, were it not for the extreme cheapness of their ordinary daily food, and for their sober habits, they could not do so. Spirits—they have no wine—appear to have no great attraction to Chinamen. They drink them occasionally, and sometimes to excess, but a reeling Chinaman is rarely to be seen in the streets. Drunkenness is not a national vice, but, unfortunately, their abstinence does not extend to opium, a drug which seems to have a greater attraction for them than for any other people on the face of the earth. They take to it greedily, and when once the habit of smoking it becomes confirmed, the difficulty of relinquishing it is exceedingly great. There has, no doubt, been much exaggeration in what has been talked and written on this subject. But on the testimony of Chinamen themselves the effects of opium smoking must be regarded as injurious to health and destructive to all the better parts of man's nature. From the time of its introduction into the country, the Chinese Government has opposed the traffic; and on the occasion of the last revision of the Treaty by Sir Rutherford Alcock, Prince Kung and his colleagues made a vigorous stand against the clause which legalizes its importation. In this as in other attempts they were unsuccessful, and it remains to be seen whether the policy they appear now to be adopting of encouraging the growth of native opium will extinguish the import trade.

CHINCHA ISLANDS, three small islands in the Pacific Ocean, about 12 miles from the coast of Peru, opposite the town of Pisco, and 106 miles distant from Callao. The largest of the group known as the North Island or Isla del Norte is only four-fifths of a mile in length, and about a third in breadth; and their whole importance is due to their immense deposits of guano. They are of granitic formation, and rise from the sea in precipitous cliffs, worn out into countless caves and hollows, which furnish convenient resting-places for the sea-fowl. Their highest points attain an elevation of 113 feet, which was increased about 20 feet by the guano

bed. The name of the islands and of the town and valley of Chinchá on the mainland, is derived from an ancient Indian race which has left some interesting relics of its sojourn. A stone idol and two water-pots of grotesque construction were discovered under 62 feet of guano; and a number of wooden idols, two regal emblems, and a curious stone slab have also been found. That these must be of very great antiquity is obvious; but the rate of increase in the guano deposits is too much a matter of conjecture to furnish even an approximate date. Mr. George Peacock, of the Pacific Steam Navigation Company, calculated the quantity of guano in the islands in 1846 at 18,250,000 tons; and according to the survey of the Peruvian Government in 1853, they then still contained 12,376,100. The supply is now practically exhausted; and the foreign export which begun in 1841 was brought to a close in 1872.

CHINCHEW, or CHINCHU, is the name usually given in English charts to an ancient and famous port of China in the province of Fuh-keen, of which the Chinese name is *Chwanchow-foo*, or *Tswanchow-foo*.

Chwanchow was in the Middle Ages the great port of western trade with China, and was known to the Arabs and to Europeans as *Zaitún* or *Zayton*, the name under which it appears in Abulfeda's Geography, and in the Mongol history of Rashíduddin, as well as in Ibn Batuta, Marco Polo, and other mediæval travellers. Marco Polo calls it "one of the two greatest commercial havens in the world;" Ibn Batuta, "the greatest seaport in the world."

CHINCHILLA, a city of Spain, in the province of Murcia, picturesquely situated on an abrupt hill ten miles south-east of Albacete, in the immediate neighborhood of the junction of the railway lines from Cartagena and Valencia to the capital.

CHINCHILLA (*Chinchilla lanigera*), a small Mammal belonging to the order *Rodentia*, inhabits the eastern slopes of the Andes in Chili, Bolivia, and Peru, where it has a vertical range of from 8000 to 12,000 feet. It is very similar in size to the common squirrel, being about 10 inches long exclusive of the tail, and in the form of its head it resembles the rabbit. It is covered with a dense soft fur three-fourths of an inch long on the back, and upwards of an inch in length on the sides, of a slate-grey color, darkly mottled on the upper surface, and of a dusky white beneath; its ears are long and broad and thinly covered with hair. It lives in burrows, and these subterranean dwellings undermine some parts of the Chilian Andes to such an extent as to cause considerable inconvenience and even danger to travellers on horseback. Chinchillas live in communities, forming their burrows among loose rocks, and coming out to feed only in the early morning and towards sunset. They feed chiefly on roots and grasses, in search of which they often travel a considerable distance from their homes; and when eating they sit on their haunches, holding their food in their fore paws. The Indians in hunting them employ a weasel, which is trained to enter the crevices of the rocks, where the chinchillas often lie concealed during the day in order to avoid the sunshine, and drive them out, when they are readily killed. The fur of this rodent was prized by the ancient Peruvians, who made coverlets and other articles with the skin, and at the present day they are exported in large numbers to Europe—134,000 skins having been imported into London during 1874—where they are made into muffs, tippets, and trimmings for ladies' dresses. That they have not under such circumstances become rare, if not altogether extinct, is doubtless owing to their extraordinary fecundity, the female usually producing five or six young twice a year. They are exceedingly docile in disposition and cleanly in their

habits, and are thus well fitted for domestication, and in this state, owing to the value of their furs, might no doubt be profitably reared.

CHINDWARA. See CHHINDWÁRÁ.

CHINGLEPUT, the principal town and fortress of a district of the same name, in the presidency of Madras, in British India, on the left bank of the Palar river, 36 miles S.S.W. of Madras. Population, 7,500.

CHIN-HAE, or CHING-HAI, a district town of China, in the province of Che-keang, at the mouth of the Yung-keang river, 12 miles N.E. of Ningpo, in 29° 58' N. lat. and 121° 45' E. long.

CHIN-KEANG-FOO, a maritime city of China, in the province of Keang-soo, at the junction of the Grand Canal with Yang-tse-Keang, 48 miles E.N.E. of Nanking.

CHINON (in the Middle Ages *Castrum Caino*), a town of France, capital of an arrondissement in the department of Indre-et-Loire, pleasantly situated on the right bank of the Vienne, 28 miles S.W. of Tours. Here Henry II. of England died in 1189; and on the rock above the town there are extensive ruins of the castle where Charles VII. of France resided after the occupation of Paris by the English, and first gave audience to Joan of Arc. Population (1889), 7,600.

CHINSURAH, a town of British India, situated on the western bank of the Hooghly river, 24 miles above Calcutta, and formerly the principal Dutch settlement in Bengal. Population, 14,000.

CHIOGGIA, or CHIOZZA, a town of Italy, in an island of the same name in the Gulf of Venice, 15 miles south of the city of that name. Population, 26,336.

CHIOS. See SCIO.

CHIPPENHAM, a parliamentary and municipal borough and market-town of England, in the county of Wiltshire, 30 miles N.N.W. of Salisbury, and 94 miles from London by the Great Western Railway, in a valley on the left bank of the Avon, which is here crossed by a handsome stone bridge of 22 arches. Population, 7,000.

CHIPPEWA FALLS, the county seat of Chippewa county, Wis., is situated on the Chippewa river, 12 miles northeast of Eau Claire, and 90 miles east of St. Paul. It has extensive water power, which is utilized in a number of saw-mills and flour-mills. Lumber is exported in great quantity. The town contains two national banks, six churches, and two newspaper offices, and has a population (1890) of 8,520.

CHIPPEWAY INDIANS. See OJIBWAY.

CHIRON, in Greek mythology, a Centaur, the son of Chronos and Philyra, who dwelt in a grotto at the foot of Mount Pelion, and who was famous as the wisest of his time, as the founder of the healing art, and as the teacher of most of the ancient heroes, including Hercules, Achilles, Æsculapius, Ulysses, Castor and Pollux, Æneas, Theseus, Meleager, and Nestor. Accidentally pierced by a poisoned arrow shot by Hercules he resigned his immortality to Prometheus, and escaped the prolonged pain by death.

CHISWICK, a village of England, on the north bank of the Thames, in Middlesex, 4½ miles from Hyde Park Corner, on a branch of the South-Western Railway.

CHITTAGONG, a district of British India, in the division of the same name (which also comprises the districts of Noákhálí, Tipperah, Chittagong Hill Tracts, and Independent Hill Tipperah), under the jurisdiction of the lieutenant-governor of Bengal. It is bounded on the N. by Hill Tipperah and the Chittagong Hill Tracts, E. by the Chittagong Hill Tracts and Arákán, S. by Arákán, and W. by the Bay of Bengal. It consists of a strip of low-lying land along the Bay of Ben-

gal, about 165 miles in length, and an average breadth of 50 miles. Population (1889), 1,200,000.

CHITTAGONG PORT, or Islámábád, the principal town of the above district, is situated on the right bank of the Karnaphulí river. The river is here navigable by ships of 20 feet draught, and the port has long been a place of considerable maritime trade. Population, 22,000.

CHITTAGONG HILL TRACTS, a district on the eastern frontier of British India, in the Chittagong division, and is bounded on the N. by the semi-independent state of Tipperah, on the E. and S. by the district of Arákán in British Burmah, and on the W. by the regulation district of Chittagong. The general aspect of the country is very hilly, with deep ravines and prominent cliffs, covered with forests and gigantic creepers. Irregular masses of jungle, low hills, water-courses, and swamps fill up the intervals between the chief ranges. Population (1888), 70,000.

CHIUSA, or LA CHIUSA, a town of Italy on the Pesio, in the province of Cuneo, and about ten miles south-east of the city of that name. It has a population of upwards of 6000, chiefly engaged in the manufacture of silk and glass. It is not to be confounded with a hamlet in the province of Turin, which was named Chiusa (enclosure) from its position near the fortified line erected by Desiderius of Lombardy, in 774, to check the advance of Charlemagne.

CHIUSI, a town of Italy, in the Tuscan province of Siena, situated on a hill, and not far from the Lake of Chiusi. It is a bishop's see, and has a large cathedral, but is chiefly interesting for the Etruscan bronzes, mirrors, vases, and funeral urns found in the vicinity, of which its museums contain collections. Population, 6,460.

CHIVASSO, a city of Italy, in the province of Turin, at a railway junction, 15 miles north-east of the city of Turin. Situated on the left bank of the Po near the influx of the Orco, it was formerly considered the key of Piedmont; but its fortifications were dismantled by the French in 1804, and it is now only enclosed by a single wall with two gates leading to two suburbs. Population, 7800.

CHLAMYDOPHORE (*Chlamyphorus truncatus*), an Edentate Mammal found at Mendoza, on the eastern slope of the Cordilleras, where it is known as the *Pichi-ciago*, but is so seldom seen as to be regarded with curiosity even by the natives. Its total length is from 5 to 6 inches, and its upper surface is covered with a flexible cuirass somewhat resembling the external armature of the Armadilloes — its nearest allies — but differing from the latter in being attached only by the middle of the back and the top of the head, the frontal bone of the skull being provided with two prominent knobs for this purpose. It is a burrowing animal, living like the mole in the subterranean galleries which it scoops out with its sharp, powerful claws, assisted proably by the flattened tail, which is supplied with strong muscles, and thus well adapted for throwing out the earth which gradually accumulates under the creature. Like the mole, its ears and eyes are exceedingly small, and almost hidden by the long silky hair surrounding them. Another species has recently been discovered in Bolivia somewhat larger than the preceding, and differing from it in having the dorsal shield attached all over to the skin of the back.

CHLORAL, TRICHLORALDEHYDE, or HYDRIDE OF TRICHLORACETYL, a substance discovered by Leibig in 1832, and further studied by Dumas and Städelér. It is a heavy, oily, and colorless liquid, of specific gravity 1.518 at 0° C., and boiling point 94.4° C. It has a greasy, somewhat bitter taste, and gives off a vapor at ordinary temperature which has a pungent color and an irritating effect on the eyes. The word *chloral* is derived

from the first syllables of *chlorine* and *alcohol*, the names of the substances employed for its preparation. Chloral is soluble in alcohol and ether, in less than its own weight of water, and in four times its weight of chloroform; it absorbs but is not acted upon by chlorine, and dissolves bromine, iodine, phosphorous, and sulphur.

Chloral is prepared by passing dry chlorine into absolute alcohol; the latter must be cooled at first, but towards the end of the operation has to be heated nearly to boiling. The alcohol becomes converted finally into a syrupy fluid, from which chloral is procured by treatment with sulphuric acid.

Chloral Hydrate, the compound formed by the union of water with chloral, occurs in the form of oblique, often very short, rhombic prisms; an acicular form of crystals is considered by Paul to be characteristic only of the alcoholate. The purest samples of chloral hydrate present the appearance of ordinary alum broken into fragments, are perfectly transparent, only slightly odorous, free from powder, and dry to the touch, and do not become white by exposure.

The first effect of a dose of chloral hydrate is to produce a state of congestion of the brain, as evidenced by the condition of the retinal vessels; after 5 or 10 minutes, contraction of the vessels is observed, the retina becomes of a pale pink color, and drowsiness ensues; when this wears off, the retinal and cerebral vessels resume their accustomed size. In case of death from chloral, the cerebral vessels have been found much congested.

The effects of chloral hydrate vary with different individuals; but, as a rule, a dose of 20 grains acts in a healthy subject as a mild sedative of the sensory nervous system, and produces, about half or three quarters of an hour after it has been taken, a light, refreshing, and normal sleep, without causing headache or disturbance of the respiration and pulse.

Taken in large quantities chloral hydrate is a powerful soporific; it perceptibly lowers the temperature of the body, and diminishes the frequency and force of the heart's action, probably from paralysis of its intrinsic motor ganglia; whilst the rate of respiration is lessened, apparently through affection of the medulla oblongata. Excessive doses produce complete insensibility, and diminish, and at last abolish reflex excitability; pallor, coldness of the extremities, lividity, and muscular relaxation ensue; and death may result from cardiac syncope.

Chloral hydrate is of special value as a soporific where opium is inadmissible, as in the case of children, in uræmia, and in some fevers.

CHLORINE, one of the chemical elements (symbol, Cl), discovered by Scheele in 1774. It was long regarded as a compound; Scheele termed it *dephlogisticated muriatic acid*, and Berthollet about 1785 gave it the name of *oxygenized muriatic acid*, which Kirwan contracted into *oxymuriatic acid*. In 1809 an abstract of a paper was published by Gay-Lussac and Thénard, in the 2d vol. of the *Mémoires d'Arcueil*, in which they demonstrated the possibility of the absence of oxygen from oxymuriatic acid. The attention of Davy being drawn to the subject, he in 1810 communicated to the Royal Society a paper in which he showed that there was no evidence in support of the opinion that oxymuriatic acid contained oxygen; and in a paper published in the following year he comes to the conclusion that oxymuriatic acid is an uncompounded substance, and gives to it the name of *chlorine*, on account of the greenish color it possesses.

Hydrochloric Acid (HCl). — Practically, the whole of the hydrochloric acid now employed in the manufacturing arts is obtained as a collateral product in the

celebrated soda process of Leblanc. The first stage in that process consists in treating common salt with sulphuric acid in the salt-cake roasting furnace, by which sodium sulphate and hydrochloric acid are formed.

Till the year 1863 the acid fumes given off in alkali works were allowed to escape freely into the atmosphere, and being dissolved and brought down by every shower, destroyed or seriously damaged vegetation for miles around the works. In that year the Alkali Act was passed, by which manufacturers were obliged to condense not less than 95 per cent. of the total amount of hydrochloric acid evolved in their establishments; and since that time great attention has been paid to the condensation, so that now in many works practically no acid fumes escape. The hydrochloric acid gas liberated in the roasting furnace is conveyed through a range of stoneware pipes, in connection with which are various devices for cooling it in its passage. It is then conducted into condensing towers—long wide funnels packed with coke—through which a stream of water is made to percolate from the top, an enormous surface of moisture being thus presented to the acid fumes. The solution of the gas in the water constitutes the hydrochloric acid, muriatic acid, or spirit of salt of commerce. So prepared, the acid always contains several impurities, such as arsenious acid, ferric chloride, and sulphurous acid; but these do not interfere with its application to the preparation of bleaching powder, in which it is chiefly consumed. Without any purification it is also employed for "souring" in bleaching, and in tin and lead soldering.

Bleaching Powder or Chloride of Lime.—The history of the application of chlorine to bleaching purposes before the introduction of the so-called chloride of lime will be found under the article BLEACHING. Bleaching powder is made by exposing pure slaked lime to an atmosphere of chlorine till the lime will absorb no more of the gas. Many plans for the preparation of the chlorine have been proposed, and various important processes adopted, since the manufacture of bleaching-powder was established. The original process was as follows: A mixture of native peroxide of manganese ground to a fine powder, common salt, and sulphuric acid was put into a large, nearly spherical, leaden vessel furnished at the top with an air-tight lid. In this vessel an agitator was placed by which its contents could be from time to time stirred up. From the lid a lead pipe conveyed the liberated chlorine into the chamber in which the lime to be saturated was spread in a thin layer. The exterior of the leaden vessel was cased with an iron covering, space for the circulation of a current of steam between it and the covering being left. Upon the charging of the still chlorine was at first given off without heat; but after some time a current of steam was made to circulate around the still, so as to maintain a sufficient temperature to disengage all the chlorine. The materials used consisted of common salt, manganese peroxide, and sulphuric acid, and the resulting products were manganous sulphate, sodium sulphate, water, and chlorine.

Through the development of Leblanc's well-known soda process large quantities of hydrochloric acid became available for the manufacture of chlorine, in place, as formerly, of a mixture of common salt and sulphuric acid; and for many years hydrochloric acid alone has been used.

Bleaching powder when fresh is a dry, white lime-like powder, emitting a strong odor of hypochlorous acid. Commercial samples vary considerably in strength, but when newly made and of good quality they should contain from 35 to 37 per cent. of available chlorine.

On exposure bleaching powder parts with its chlorine with considerable rapidity, losing, according to some experimenters, at the rate of 0.63 per cent. per month.

CHLOROFORM, TRICHLOROMETHANE TRICHLORIDE OF FORMYL, or DECHLORINATED METHYLIC CHLORIDE, CHCl_3 , is a substitution-product of marsh-gas, from which it can be formed by the action of the chlorine. It is a clear, colorless, volatile liquid, which refracts light strongly, with specific gravity of 1.525 at 0°C ., and vapor density 1.491. It boils at 60.16°C ., and is not frozen at a temperature of -16°C . It has an agreeable ethereal odor, a slightly acrid and intensely sweet taste, is miscible in all proportions with alcohol, but is only slightly soluble in water. Though not ordinarily inflammable, it burns with a green flame when thrown upon hot coals, or if a light be applied to a mixture of it with not less than about 30 per cent. of alcohol. Chloroform may be employed as a solvent for resin, camphor, gutta-percha, iodine, bromine, and the alkalis. It can be prepared in a great variety of ways.

The history of chloroform affords but one amongst many instances of the importance of chemical research even when no immediate practical advantages are apparently to be derived from its prosecution. Chloroform was discovered in 1831 by Guthrie in America, and by Soubeiran in France, and by the latter was described as *ether biclorique*. Liebig, who made the independent discovery of it in the following year, regarded it as a trichloride of carbon; but in 1834 its true constitution was established by Dumas. In March, 1847, Flourens submitted to the Academy of Sciences at Paris a paper containing observations on the anæsthetic powers of chloroform upon animals. In the summer of that year "chloric ether," the active principal of which is chloroform, was used at St. Bartholomew's Hospital by Mr. Lawrence instead of sulphuric ether for the production of anæsthesia; and in the succeeding autumn Dr. J. Y. Simpson of Edinburgh introduced the employment of pure chloroform as an anæsthetic into surgical practice. By its effect upon the nervous system chloroform causes a suspension of voluntary motion and of sensation, whilst respiration and the action of the sympathetic ganglia of the heart are still continued. It is more active, occasions less bronchial irritation, and is easier of application than ether, the use of which in medical practice it has to a very great extent superseded; it possesses also the advantage that its vapor is unflammable. The occurrence, however, from time to time, of deaths in consequence of the use of chloroform, has led many practitioners to recommend the employment of ether in its stead; but in the majority of instances fatal results may be attributed to some fault in administration; and in some cases death has been thought to be attributable to the giving of a less than customary quantity of chloroform, which, paralyzing the cerebral hemispheres, but not the ganglia of the base of the brain and the medulla, has permitted reflex action of the vagus upon the heart through irritation of a sensory nerve. In operations after which disturbance of the abdomen must be avoided, ether is far preferable to chloroform, on account of the sickness usual for some time after the taking of the latter.

CHOCOLATE is a preparation from the seeds of the cocoa or cacao tree (*Theobroma Cacao*), used as food. The term is corrupted from the Mexican name chocolatl, and the preparation was in use in Central America before the discovery of the Western Continent by Columbus. For the history of the plant and other details see under COCOA. At the present day the general distinction between the preparations known as chocolate and cocoa respectively is that the former embraces the forms prepared as cakes or stiff paste,

while prepared cocoa is chiefly sold as a powder or simply the ground nibs of the seed. Chocolate is prepared usually from the finer varieties of cocoa seeds by first roasting, and then shelling, or depriving the seeds of their husks. They are then ground up to a very fine uniform paste on a hot plate or bed, the heat of which, by melting the fat, present in seeds to the extent of about 50 per cent., keeps the paste in a fluid condition. To the ground seeds a proportion of sugar, with sometimes arrowroot, and some flavoring essence, most commonly vanilla or cinnamon, are added, and when thoroughly incorporated the semi-fluid paste is cast into moulds. In addition to being used as a diet drink, a very large quantity of chocolate, specially prepared under various forms for eating, is now consumed as a sweetmeat, and it forms at once a most wholesome, nutritious, and palatable confection.

CHOCTAWS, or CHAHTAS, a North American tribe, now settled in the Indian Territory along the northern banks of the Red river, where they possess about 10,450 square miles. When first known to Europeans they occupied the district now forming the southern part of Mississippi and the west part of Alabama. On the settlement of Louisiana they formed an alliance with the French, and assisted them against the Natchez and Chickasaws; but by degrees they entered into friendly relations with the English, and at last, in 1786, recognized the supremacy of the United States by the treaty of Hopewell. Their emigration westward began about 1800, and the last remains of their original territory were ceded in 1830. In their new settlements the Choctaws continued to advance in prosperity till the outbreak of the civil war, which considerably diminished the population and ruined a large part of their property. They sided with the Confederates, and their territory was occupied by Confederate troops; and accordingly at the close of the war they were regarded as having lost their rights. Part of their land they were forced to surrender to the Government; their slaves were emancipated; and provision was claimed for them in the shape of either land or money. Since then they have considerably recovered their position. In 1889 they numbered 18,000, had 60,000 acres under cultivation, and possessed private property to the value of upward of \$5,100,000. They are governed by a chief and a national council of 40 members, according to a written constitution, which dates in the main from 1838; and they possess a regular judicial system and employ trial by jury. Missions are maintained amongst them by the American Board of Commissioners, the Presbyterians, the Methodists, and the Baptists. The Choctaw language has been reduced to writing, and brought to some degree of literary precision by the efforts of the missionaries, who have produced in the language the Bible, school-books, and hymnals. A newspaper is published weekly in Choctaw and English at New Boggy; and a grammar was composed by the late Rev. C. Byington, (Philadelphia, 1870.)

CHODOWIECKI, DANIEL NICOLAS (1726-1801), a painter and engraver of Polish descent, was born at Dantzig. Chadowiecki produced the famous *History of the Life of Jesus Christ*, a set of admirably painted miniatures, which made him at once so popular that he laid aside all occupations save those of painting and engraving. Few books were published in Prussia for some years without plate or vignette by Chodowiecki. It is not surprising, that the catalogue of his works (Berlin, 1814,) should include over 3000 items, of which, however, the picture of *Calas and his Family* is the only one of any reputation.

The title of the German Hogarth, which he sometimes obtained, was the effect of an admiration rather

imaginative than critical, and was disclaimed by Chodowiecki himself. The illustrator of *Lavater*, the painter of the *Hunt the Slipper* in the Berlin Museum, had indeed but one point in common with the great Englishman, — the practice of representing actual life and manners. In this he showed skilful drawing and grouping, and considerable expressional power, but no tendency whatever to the use of the grotesque.

CHOISEUL, CÉSAR, DUC DE (1598-1675), commonly known as MARSHAL DU PLESSIS, was born at Paris in 1598. He commanded a regiment at the siege of Rochelle, and defended Oléron and Ré against the English. He was employed by Richelieu against the Spaniards, both as general and envoy, and in both capacities he met with considerable success. He was engaged under Mazarin in the war of the Fronde against Turenne, whom he defeated at Rethel; and he was also concerned in the negotiations of Louis XIV. with Charles II. of England. He became duke in 1665, and died in 1675.

CHOISEUL, CLAUDE ANTOINE GABRIEL, DUC DE (1760-1838), was born in August, 1760. He was brought up at Chanteloup, under the care of his relative, the Duke Étienne François, who was childless. The outbreak of the Revolution found him a colonel of dragoons, and throughout those troublous times he was distinguished for his devotion to the royal house. He made a memorable attempt to rescue Louis XVI. from the hands of the Revolutionists; but the affair was ill-managed: the royal party was recaptured; a price was put upon Choiseul's head, and he had to seek refuge in flight. His hopes, however, of assisting the royal cause were not relinquished, and he succeeded in raising a regiment of hussars with which he joined the royalist army. He was eventually taken prisoner, and confined at Dunkirk. Having escaped, and set sail for India, he was wrecked on the French coast, and condemned to death by the decree of the Directory. Nevertheless, he was fortunate enough to escape with his life. Napoleon allowed him to return to France; and at the Restoration he was called to the House of Peers by Louis XVIII. At the revolution of 1830 he was nominated a member of the Provisional Government; and he afterwards received from Louis Philippe the post of aide-de-camp to the king and governor of the Louvre. He died in Paris in 1838.

CHOISEUL, ÉTIENNE FRANÇOIS, DUC DE (1719-1785), a French statesman, was born on the 28th June, 1719. Under the name of Count de Stainville, he entered the army, and rose to the rank of lieutenant-general. Having contracted a wealthy marriage, and gained the friendship of Madame de Pompadour, the mistress of Louis XV., he entered political life as envoy, first to Rome, and then to Vienna; and in November, 1758, he was created Duc de Choiseul and peer of France, and appointed minister of foreign affairs. His first act was to sign a secret treaty of alliance with Maria Theresa of Austria, who had the sympathy and support of Madame de Pompadour. An invasion of Great Britain was Choiseul's next project; and so eager was he to carry out this ill-fated scheme, that the French interests in America and the West Indies were miserably neglected. Choiseul is also responsible for allowing the possessions of France in India to be lost without adequate resistance, and for not interfering in time to prevent the dismemberment of Poland.

The principal achievement of Choiseul's policy is known as the "Family Compact," by which all the sovereigns of the House of Bourbon, viz., the kings of France, Spain, and the two Sicilies, were united in an offensive and defensive alliance (1761). Portugal also was afterwards persuaded to join the confederation in

war against England. Great enthusiasm was awakened in France; and Choiseul, having handed over to his cousin, Choiseul-Praslin, the department of foreign affairs, devoted himself to the reorganization of the army and navy. But the plans of Pitt proved successful, and, in November, 1762, France was obliged to cede to England, by the treaty of Fontainebleau, Acadia, Canada, Cape Breton, and all the islands of the Saint Lawrence, all Louisiana to the left of the Mississippi, Ohio, the isles of Grenada and Minorca, and a large part of her possessions in India.

Much more fortunate was his policy against the Jesuits. It was partly due to his influence that they were driven out of Spain; in 1764 he effected their banishment from France; and ten years later he prevailed on Pope Clement XIV. to declare their order abolished.

Until the end of 1770 Choiseul continued to be foremost among the directors of French policy. But after the death of Madame de Pompadour, the intrigues of the Duc d'Aiguillon, the Abbé Terray, and Chancellor Maupeou, backed by the influence of Madame du Barri, whose friendship Choiseul had scornfully rejected, created an estrangement between him and the king, who banished him to his estate at Chanteloup. His fall, however, only increased his popularity, and on his departure the most distinguished of the courtiers crowded round him to bid him farewell. The four years of his retirement were spent chiefly in writing his autobiography, which was published at Paris in 1790. He was recalled to Paris by Louis XVI. in 1774, and died there in May, 1785. Choiseul appears to have been a man of considerable, but not first-rate ability; his disposition was haughty but courteous; and such was the magnificence of his habits that, notwithstanding his vast wealth, he died leaving enormous debts.

CHOLERA (bile, and to flow). Two distinct forms of disease are included under this general term, namely, Simple Cholera and Malignant Cholera. Although essentially different both as to their causation and their pathological relationships, these two diseases may in individual cases present many symptoms of mutual resemblance.

SIMPLE CHOLERA (synonyms, *Cholera Europæa*, *British Cholera*, *Summer or Autumnal Cholera*) is the cholera of ancient medical writers, as is apparent from the accurate description of the disease given by Hippocrates, Celsus, and Aratæus. Its occurrence in an epidemic form was noticed by various physicians in the 16th century, and an admirable account of the disease was subsequently given by Sydenham in describing an epidemic of cholera in London in 1669-72.

The chief symptoms in well-marked cases are vomiting and purging, occurring either together or alternately. The seizure is usually sudden and violent. The contents of the stomach are first ejected, and this is followed by severe retching and vomiting of thin fluid of bilious appearance and bitter taste. The diarrhœa which accompanies or succeeds the vomiting, and is likewise of bilious character, is attended with severe griping abdominal pain, while cramps affecting the legs or arms greatly intensify the suffering. The effect upon the system is rapid and alarming, a few hours of such an attack sufficing to reduce the strongest person to a state of extreme prostration. The surface of the body becomes cold, the pulse weak, the voice husky, and the whole symptoms may resemble in a striking manner those of malignant cholera, to be subsequently described. In unfavorable cases, particularly where the disorder is epidemic, death may result within forty-eight hours. Generally, however, the attack is arrested and recovery soon follows, although there may remain for a considerable time a degree of irritability of the alimentary

canal, rendering necessary the utmost care in regard to diet.

Attacks of this kind are of frequent occurrence in summer and autumn in almost all countries. They appear specially liable to occur when cold and damp alternate with heat. Occasionally the disorder prevails so extensively as to constitute an epidemic. The exciting causes of an attack are in many cases errors in diet, particularly the use of unripe fruit and new vegetables, and the excessive drinking of cold liquids during perspiration. Outbreaks of this disorder in a household or community can sometimes be traced to the use of impure water, or to noxious emanations from the sewers.

In the treatment, vomiting should be encouraged so long as it shows the presence of undigested food, after which opiates ought to be administered. Small opium pills, or Dover's powder, or the aromatic powder of chalk with opium, are likely to be retained in the stomach, and will generally succeed in allaying the pain and diarrhœa, while ice and effervescing drinks serve to quench the thirst and subdue the sickness. In aggravated cases where medicines are rejected, enemata of starch and laudanum, or the hypodermic injection of morphia ought to be resorted to. Counterirritation by mustard or turpentine over the abdomen is always of use, as is also friction with the hands where cramps are present. When sinking threatens, brandy and ammonia will be called for. During convalescence the food should be in the form of milk and farinaceous diet, or light soups and all indigestible articles must be carefully avoided.

In the treatment of this disease as it affects young children (*Cholera Infantum*), most reliance is to be placed on the administration of chalk and the use of starch enemata. In their case opium in any form cannot be safely employed.

MALIGNANT CHOLERA, (synonyms, *Asiatic Cholera*, *Indian Cholera*, *Epidemic Cholera*, *Algide Cholera*), is probably the most severe and fatal of all diseases. This form of cholera belongs originally to Asia, more particularly to India, where, as well as in the Indian Archipelago, epidemics are known to have occurred at various times for several centuries. It was not, however, till 1817 that the attention of European physicians was specially directed to the disease by the outbreak of a violent epidemic of cholera at Jessore in Bengal. This was followed by its rapid spread over a large portion of British India, where it caused immense destruction of life both among natives and Europeans. During the next three years cholera continued to rage all over India, as well as in Ceylon and other of the Indian islands. The disease now began to spread over a wider extent than hitherto, invading China on the east, and Persia on the west. In 1823 it had extended into Asia Minor and Russia in Asia, and it continued to advance steadily though slowly westwards, while at the same time fresh epidemics were appearing at intervals in India. From this period up till 1830 no great extension of cholera took place, but in the latter year it reappeared in Persia and along the shores of the Caspian sea, and thence entered Russia in Europe. Despite the strictest sanitary precautions, the disease spread rapidly through that whole empire, causing great mortality and exciting consternation everywhere. It ravaged the northern and central parts of Europe, and spread onwards to England, appearing in Sunderland in October, 1831, and in London in January, 1832, during which year it continued to prevail in most of the cities and large towns of Great Britain and Ireland, and its disastrous effects are still in the recollection of many persons. The disease subsequently extended into France, Spain, and Italy, and crossing the Atlantic

spread through North and Central America. It had previously prevailed in Arabia, Turkey, Egypt, and the Nile district, and in 1835 it was general throughout North Africa. Up till 1837 cholera continued to break out in various parts of the Continent of Europe, after which this epidemic disappeared, having thus within twenty years visited a large portion of the world.

About the year 1841 another great epidemic of cholera appeared in India and China, and soon began to extend in the direction traversed by the former, but involving a still wider area. It entered Europe again in 1847, and spread through Russia and Germany on to England, and thence to France, whence it passed to America, and subsequently appeared in the West Indies. This epidemic appears to have been even more deadly than the former, especially as regards Great Britain and France. A third great outbreak of cholera took place in the East in 1850, entering Europe in 1853. During the two succeeding years it prevailed extensively throughout the Continent, and fell with severity on the armies engaged in the Crimean War. Although widely prevalent in Great Britain and Ireland it was less destructive than former epidemics. It was specially severe throughout both North and South America. A fourth epidemic visited Europe again in 1865-6, but was on the whole less extensive and destructive than its predecessors. Cholera has since appeared in the form of limited epidemics in various districts of Russia, Turkey, and Western Asia, while it still continues to maintain its footing in India, where sudden outbreaks are of frequent occurrence, being often connected with the assembling of crowds at native festivals.

A disease so widespread in its distribution and deadly in its effects has naturally engaged the attention of scientific physicians in all countries. Investigations into the nature of cholera and the conditions favoring its propagation have been extensively carried on in England, in Germany, and in India, not merely by those whose opportunities of observing and treating the disease have been numerous, but by others specially undertaking such inquiries at the suggestion of Governments or other public authorities. Although many conflicting views have been propounded on the above-named points, the result of these investigations has been the collection of an amount of information sufficient to form the basis of a rational theory of cholera, and which may be expected yet to lead to the discovery of means to counteract the spread of this pestilence.

The following points respecting the nature and mode of propagation of cholera are generally admitted by the best authorities:—

1. That cholera is a specific disease depending upon the action in the human system of a morbid material (whether of the nature of a parasitic germ or a poisonous miasm being still undetermined) which is originally generated in certain parts of India, particularly in the delta of the Ganges and the flat lands around Madras and Bombay;

2. That this infective material is capable of spreading from its center of origin indefinitely, and thus cholera has appeared in an epidemic form in almost all countries; and further that the disease may become acclimatized (endemic) in some places;

3. That when it spreads abroad the vehicle of its transmission is the discharges from the bowels of persons already affected; and that from these the cholera-infecting matter is exceedingly apt to be diffused through the air, to contaminate water, and to become attached to clothing, bedding, furniture, &c., and in these various ways to find ready entrance through the lungs or alimentary canal into the bodies of healthy persons, where

it is capable of developing the disease in a more or less severe form according to the quantity introduced;

4. That cholera is thus in a certain sense contagious;

5. That overcrowding and other insanitary conditions, particularly the presence of decomposing organic matter, afford the conditions favorable to the multiplication of the cholera matter, and thus tend to spread the disease, although of themselves incapable of originating it.

But even admitting these propositions, it is obvious that they are insufficient to explain the intense tendency of cholera to spread widely at some times more than others. Without alluding to the various hypotheses which have been advanced on this point, it seems probable, from the history of the disease as exhibited both in Europe and in India, that various factors may alone or together be concerned in the rise and spread of epidemics of cholera. It is stated that a high temperature favors the development of cholera, and in general this appears to be the case, but it is by no means invariable, as some of the most severe epidemics raged with greatest fury in winter. That cholera might be carried by the agency of winds from one country to another must be held as a possibility, although no satisfactory evidence exists upon the point. More probable are the theories which assign to local conditions an important part in the propagation of cholera. With regard to mere locality it appears that the disease has been generally found to prevail more extensively and with greater virulence in low-lying districts than in elevated situations. In connection with this, the relation of the character of the soil to the propagation of cholera has been elaborately investigated by Professor Pettenkofer of Munich, whose work in this department has attained world-wide reputation, and who ascribes a powerful influence in the diffusion of the disease to the ground-water of a locality where cholera is prevailing,—shallow, porous soils affording, according to his views, special facilities for the reception, proliferation, and distribution of the so-called cholera germs. Further, the observations of Dr. Snow, Dr. Frankland, and Mr. Simon in certain epidemics of cholera in London have conclusively connected outbreaks of the disease in various districts with the use of drinking-water contaminated with the discharges from cholera patients. All investigations appear clearly to show that the prime factor, and that without which no other conditions can take effect, is the introduction into the locality of the specific infecting matter, this being accomplished in general by the arrival of infected persons, for cholera epidemics, as is well known, spread mostly in the lines of human intercourse and travel. But further, in this as in other acute infectious diseases, a special liability of individuals must be admitted, as is proved by the fact that among persons living under precisely the same conditions some will suffer while others escape, and likewise that persons inhabiting cholera districts may come to enjoy an immunity from attacks of the disease. Among known predisposing causes, the incautious employment of purgative medicines, the use of unripe fruit, bad and insufficient food, intemperance, personal uncleanness, overcrowding, and all kinds of unfavorable hygienic surroundings play an important part during the course of any epidemic of cholera.

In describing the symptoms of cholera it is customary to divide them into three stages, but it must be noted that these do not always present themselves in so distinct a form as to be capable of separate recognition. The first or premonitory stage consists in the occurrence of diarrhœa. Frequently of mild and painless character, and coming on after some error in diet, this

symptom is apt to be disregarded. The discharges from the bowels are similar to those of ordinary summer cholera, which the attack closely resembles. There is, however, at first the absence of vomiting. This diarrhœa generally lasts for two or three days, and then if it does not gradually subside either may pass into the more severe phenomena characteristic of the second stage of cholera, or on the other hand may itself prove fatal.

The second stage of cholera is termed the stage of collapse or the algide or asphyxial stage. As above mentioned, this is often preceded by the premonitory diarrhœa, but not unfrequently the phenomena attendant upon this stage are the first to manifest themselves. They come on often suddenly in the night with diarrhœa of the most violent character, the matters discharged being of whey-like appearance, and commonly termed the "rice-water" evacuations. They contain large quantities of disintegrated epithelium from the mucous membrane of the intestines. The discharge, which is at first unattended with pain, is soon succeeded by copious vomiting of matters similar to those passed from the bowels, accompanied with severe pain at the pit of the stomach, and with intense thirst. The symptoms now advance with rapidity. Cramps of the legs, feet, and muscles of the abdomen come on and occasion great agony, while the signs of collapse make their appearance. The surface of the body becomes cold and assumes a blue or purple hue, the skin is dry, sodden, and wrinkled, indicating the intense draining away of the fluids of the body, the features are pinched and the eyes deeply sunken, the pulse at the wrist is imperceptible, and the voice is reduced to a hoarse whisper (the *vox cholera*). There is complete suppression of the urine.

In this condition death often takes place in less than one day, but in epidemics cases are frequently observed where the collapse is so sudden and complete as to prove fatal in one or two hours even without any great amount of previous purging or vomiting. In most instances the mental faculties are comparatively unaffected, although in the later stages there is in general more or less apathy.

Reaction, however, may take place, and this constitutes the third stage of cholera. It consists in the arrest of the alarming symptoms characterizing the second stage, and the gradual but evident improvement in the patient's condition. The pulse returns, the surface assumes a natural hue, and the bodily heat is restored. Before long the vomiting ceases, and although diarrhœa may continue for a time, it is not of a very severe character and soon subsides as do also the cramps. The urine may remain suppressed for some time, and on returning is often found to be albuminous. Even in this stage, however, the danger is not past, for relapses sometimes occur which speedily prove fatal, while again the reaction may be of imperfect character, and there may succeed an exhausting fever (the so-called typhoid stage of cholera) which may greatly retard recovery, and under which the patient may sink at a period even as late as two or three weeks from the commencement of the illness.

Many other complications are apt to arise during the progress of convalescence from cholera, such as diphtheritic and local inflammatory affections, all of which are attended with grave danger.

When the attack of cholera is of milder character in all its stages than that above described, it has been named *Cholerine*, but the term is an arbitrary one and the disease is essentially cholera.

The bodies of persons dying of cholera are found to remain long warm, and the temperature may even rise after death. Peculiar muscular contractions have been

observed to take place after death, so that the position of the limbs may become altered. The soft textures of the body are found to be dry and hard, and the muscles of a dark brown appearance. The blood is of dark color and tarry consistence. The upper portion of the small intestines is generally found distended with the rice-water discharges, the mucous membrane is swollen, and there is a remarkable loss of its natural epithelium. The kidneys are usually in a state of acute congestion.

With respect to the mortality from cholera no very accurate estimate can be formed, since during the prevalence of the disease the milder cases are apt to escape notice, and it is certain that some epidemics are of a more virulent character than others. It is generally reckoned, however, that about one-half the cases of fully developed cholera prove fatal, death taking place in a large proportion of instances in from twenty-four to forty-eight hours. It has been noticed that in cholera epidemics the mortality is relatively greater at the commencement of the outbreak. The disease appears to be most fatal in children and aged persons.

It is sufficient to state that no medicinal agent has yet been found to be of infallible efficacy in the treatment of cholera. Nevertheless, much may be done, and many lives saved, by the timely application of certain well-approved remedies. The various stages of the disease demand special treatment. In the earlier period of the attack for the cholera-diarrhœa the use of opium is of undoubted value. Given alone in small and oft-repeated doses, or in combination with other astringents, such as catechu, tanin, bismuth, nitrate of silver, or acetate of lead, it frequently succeeds in quelling this symptom, and thus arresting the disease at the outset. Strict confinement to bed and the administration of bland drinks such as milk, barley-water, and beef-tea, along with counter-irritation to the abdomen, will be found valuable adjuvants to treatment. In the second stage of cholera opium is of less value, and other remedies are called for. The violent vomiting and purging and the intense thirst may be relieved by iced effervescing drinks, while at the same time endeavors should be made to maintain the heat of the body by friction with stimulating liniments or mustard to the surface, and by enveloping the body in flannel and surrounding it with hot bottles. For the relief of the cramps the inhalation of chloroform is recommended, and probably chloral would be found of equal value. Stimulants such as ammonia and brandy must be had recourse to where these measures fail to establish reaction and the patient threatens to sink. When reaction occurs and the vomiting ceases, liquid food in small quantities should be cautiously administered.

CHOLET, a town of France, in the south of the department of Maine-et-Loire, on the right bank of the Maine. Population 11,550.

CHOLULA, an ancient town of Mexico, situated on the plateau of La Puebla between Vera Cruz and the City of Mexico. Although formerly a populous place, it now contains little over 6000 inhabitants, mostly Indians who are engaged in agricultural pursuits. At the time of the Spanish conquest Cholula — then known as Chololan — was a town of great importance, consecrated to the worship of the god Quetzalcoatl, who had here one of the noblest temples in the country, built on the summit of a truncated pyramid. This pyramid, which is 160 feet high, is now the most conspicuous feature in the place, and is surrounded by a chapel dedicated to Our Lady *de los Remedios*. The town was visited by Cortez in 1519 in his march to Tenochtitlan, the city of Montezuma, and on that occasion was given over to massacre and pillage, owing to a suspicion against the good faith of the inhabitants.

CHONS, an Egyptian deity called also Khons or Khonson, principally worshipped at Thebes as the great eldest son of Amen Ra and Mut, and identified with *Aah* the moon. He had two names in the Thebaid, his second being Neferhotep; as such he is called the god of two names. By the Greeks he was called Chon, and considered to be a form of Hercules. Like Horus he is represented as a youthful god, his form mummied, wearing the lock of hair at the right side of his head and a skullcap surmounted by the full and dichotomized lunar disk, or else hawk-headed, wearing the same. He holds a crook and whip. He was a celestial deity, and at a later time connected with Thoth, and was said to have proceeded from Nu or Han the celestial waters, or to be the same as Har or Horus and Shu or Sos.

CHOPIN, FREDERIC-FRANÇOIS (1810-1849), a celebrated composer and pianist, was born at Zelazowa-Wola, near Warsaw, on February 8, 1810. His family was of French origin, but in spite of this he has become the greatest and the most national exponent of Slavonic, or more especially Polish, nationality in music. In looking through the list of his compositions, teeming with mazurkas, vales, polonaises, and other forms of national dance-music, one could hardly suppose that here one of the most melancholy natures has revealed itself. This seeming paradox is solved by the type of Chopin's nationality, a nationality of which it has justly been said that its very dances are sadness intensified. But notwithstanding this strongly-pronounced national type of his compositions, his music is always expressive of his individual feelings and sufferings to a degree rarely met with in the annals of the art. He is indeed the lyrical composer *par excellence* of the modern school, and the intensity of his expression finds its equal in literature only in the songs of Heinrich Heine, to whom Chopin has been justly compared. A sensation of such high-strung passion cannot be prolonged. Hence we see that the shorter forms of music, the *étude*, the nocturne, besides the national dances already alluded to, are chosen by Chopin in preference. Even where he treats the larger forms of the concerto or the sonata, this concentrated, not to say pointed, character of Chopin's style becomes obvious. The more extended dimensions seem to encumber the freedom of his movements. The concerto for pianoforte with accompaniment of the orchestra in E may be instanced. Here the adagio takes the form of a romance, and in the final rondo the rhythm of a Polish dance becomes recognizable while the instrumentation throughout is meagre and wanting in color. Chopin is out of his element, and even the beauty of his melodies and harmonies cannot wholly banish the impression of incongruity. Fortunately he himself knew the limits of his power, and with very few exceptions his works belong to that class of minor compositions of which he was an unrivalled master. Barring a collection of Polish songs, two concertos, and a very small number of concerted pieces of chamber music, almost all his works are written for the pianoforte solo; the symphony, the oratorio, the opera, he never attempted.

The outer life of Chopin was exceedingly simple and almost totally wanting in incident of any kind. His first musical education he received from a Polish musician of the name of Ziwna, who is said to have been a passionate admirer of J. S. Bach. He also received a good general education at one of the first colleges of Warsaw, where he was supported by the liberality of Prince Antoine Radziwill, a generous protector of artistic talent, and himself well known as the composer of music to Goethe's *Faust* and other works. His musical genius opened to Chopin the best circles of Polish society, a society at that time unrivalled in Europe for

its ease of intercourse, the beauty and grace of its women, and its liberal appreciation of artistic gifts. These early impressions of refined life were of lasting influence on Chopin's development both as a man and as an artist. He never was, and never wished to be, a popular composer; his works are full of the subtlest touches of sentiment, they breathe indeed the perfume of the *salon*, and it is the sign of highest power in Chopin that his artistic nature could live in, and even derive new vitality from, this dangerous atmosphere. While at college he received thorough instruction in the theory of his art from Joseph Elsner, a learned musician and director of the conservatoire at Warsaw. When, in 1829, he left his native town for Vienna, where his *début* as a pianist took place, he was in all respects a perfectly formed and developed artist. This feature is again characteristic of Chopin's work. There is in his compositions little of that gradual progress which, for instance, in Beethoven necessitates a classification of his works according to different periods. Chopin's individuality and his style were distinctly pronounced in that first *Don Giovanni Fantasia* which excited the wondering enthusiasm of Robert Schumann. The same mine of sentiment he worked ever after, but it was one of unbounded wealth. His first appearance in public seems to have been marked by considerable success. In 1831 he left Vienna with the intention of visiting London; but on his way to England he reached Paris and settled there for the rest of his life. Here again he soon became the favorite and musical hero of society. His connection with Madame Dudevant, better known by her literary pseudonym of George Sand, is an important feature of Chopin's life. When, in 1837, his health began to fail, George Sand went with him to Majorca, and it was mainly owing to her tender care that the composer recovered his health for a time. The last ten years of his life were a continual struggle with the pulmonary disease to which he succumbed October 17, 1849. The year before his death he visited England, where he was received with enthusiasm by his numerous admirers. A distinguished English amateur thus records his impressions of Chopin's style of pianoforte-playing compared with those of other masters. "His technical characteristics may be broadly indicated as negation of *bravura*, absolute perfection of finger-play, and of the *legatissimo* touch, on which no other pianist has ever so entirely leant, to the exclusion of that high relief and point which the modern German school, after the examples of Liszt and Thalberg, has so effectively developed."

CHOREA, the scientific name of the disease popularly known as St. Vitus' Dance.

CHORLEY, a manufacturing town of North Lancashire, England, is situated eight miles southeast of Preston on the River Yarrow and the Leeds Canal, and on the Lancashire and Yorkshire railway. Pop., 17,000.

CHORUS. See DRAMA and MUSIC.

CHOSROES. See KHOSRU and PERSIA.

CHOUANS (a Bas-Breton word signifying screech-owls), the name applied to the royalist insurgents in the west of France, at the time of the Revolution. It has been suggested that the name arose from the cry they used when approaching their nocturnal rendezvous; but it is also maintained that it was derived from a nickname applied to their leader, Jean Cottureau. Originally a contraband manufacturer of salt, Cottureau had been seized in a scuffle with the Government officers, and condemned to death, but his mother's entreaty gained his pardon from Louis XVI., and he never forgot his benefactor. He then became a soldier, but deserted, and was imprisoned; on his release he settled down in a legal occupation, and joined the National Guard. On

the outbreak of the Revolution he gathered round him a band of royalist peasantry with whom he retired to the wood of Misdon, where they lived in huts and subterranean chambers. From Lower Maine the insurrection soon spread to Brittany, and throughout the west of France. In 1793 Cottureau joined Laval with some 500 men; and the band grew rapidly and swelled into a considerable army, which assumed the name of La Petite Vendée. Cottureau greatly distinguished himself by his personal bravery and his military ability. But after the decisive defeats at Le Mans and Savenay, he retired again to his old haunts in the wood of Misdon, and resumed his old course of guerilla warfare. Misfortunes here increased upon him, until through treachery he fell into an ambushade and was mortally wounded. He died among his followers, July 28, 1794.

CHRESTIEN, FLORENT (1541-1596), a satirist and Latin poet, was the son of Guillaume Chrestien, an eminent French physician and writer on physiology, and was born at Orleans. A pupil of Henri Estienne, the famous Hellenist, and a zealous Calvinist, at an early age he was appointed tutor to Henry of Navarre, afterwards Henry IV., who made him his librarian. De Thou says of Chrestien that he was an excellent man, a man of such an enlightened and noble soul that he was incapable of writing aught from a base and servile complaisance, but that it was not safe to irritate his Calvinism, as if that were done he hit hard and straight, trusting to reconciliation afterwards. Florent Chrestien was the author of many good translations from the Greek into Latin verse,—amongst others, of versions of the *Hero and Leander* attributed to Musæus, of several plays, and of many epigrams from the Anthology, all of which were enriched with excellent notes and commentaries.

CHRESTIEN DE TROYES, the most eminent of the early French writers of romance, was born at Troyes in Champagne in the 11th century. Nothing whatever is known of his life; but from the fact that several of his works are dedicated to Philip of Alsace, count of Flanders, it is conjectured that he was attached to the court of that prince. He was much esteemed and highly praised by his contemporaries, and by the writers of the century following, and not without reason, being a master of style, and possessing in an eminent degree the qualities of invention and conduct, together with great purity and range of thought, and a remarkable knowledge of men and manners. Many romances are attributed to Chrestien des Troyes. Modern criticism has selected six only as undoubtedly his. These are—(1) *Irec et Énide*, which contains some seven thousand verses, and which has supplied the materials for one of the legends of Tennyson's Arthurian cycle; (2) *Cligés*, or *Cliget*, a second Round Table romance; (3) *Le Chevalier au Lion*, containing nearly seven thousand verses, an offshoot of the Arthurian legend, if not absolutely forming part of it; (4) *Guillaume d'Angleterre*, a specimen of a more modern style, containing three thousand three hundred verses; (5) *Le Chevalier de la Charette*, a romance of nearly seven thousand verses, written by Chrestien and continued by Godefroid de Laigny, the hero of which is Lancelot du Lac; and (6) *Perceval le Gallois*, a poem of twenty thousand verses, begun by Chrestien and continued by Gautier de Denet and by Menassier,—perhaps the earliest instance of that alliance of the Holy Grail and Round Table legends which enjoyed such an immense popularity in the Middle Ages—translations and imitations of which have appeared in English, French, German, Spanish, Flemish, and Icelandic.

CHRIST (*Χριστός*, the Anointed One), the official title given in the New Testament to Jesus of Nazareth,

equivalent to the Hebrew *Messiah*. See JESUS CHRIST.

CHRISTCHURCH, a parliamentary borough of South Hampshire, England, is situated at the confluence of the rivers Avon and Stour, 1½ miles from the sea, 22 miles S.W. of Southampton, and 111 miles from London by rail. Its history commences in Saxon times, when it was known as *Tweonaetam*, a name which continued till recently in the form of Christchurch Twineham. Population of borough, 16,000.

CHRISTCHURCH, the capital of the province of Canterbury, New Zealand, is situated on both banks of the small river Avon, about five miles from the sea. It is built upon the great Canterbury plain, which here is a dead level, though the monotony of the site has been much relieved by extensive plantations of English and Australian trees. Population (1888), 16,000.

CHRISTIANIA, the capital of Norway and of a stift of the same name, is situated about 80 miles from the sea, at the head of the Christiania fiord, at the foot of the Egeberg, in a finely-wooded and picturesque neighborhood. It is the seat of the king and of the Storthing or Parliament, of the Hoieste-ret or final court of appeal, and of the bishop of the stift. The new town, or Christiania proper, was founded in 1624 by Christian IV.; the old town, Opslo, commenced in 1058 by King Harold Haardrada, formerly the capital, is now only one of the suburbs of Christiania. The fortress of Agershuus defends the fiord and the greater part of the town; it contains the regalia and national records, and its ramparts afford an agreeable promenade. The streets of Christiania are at right angles to one another, and are lighted by gas; the houses, except in the suburbs, are of brick or stone, and are mostly two-storied. Amongst the buildings may be mentioned the royal palace, containing some of Tidemann's best pictures; the cathedral, a brick edifice in the shape of a Greek cross; the university, founded in 1811, opened in 1813, with a library of about 150,000 volumes; the legislative hall; the free museums; the observatory; the naval, military, and art schools; the lunatic and two orphan asylums; two theatres, and the large dining-hall or Damp-Køkken. The botanical gardens, about a mile from the town, contain a large collection of plants from Spitzbergen and Iceland. The industrial establishments of Christiania and the circumjacent amt of Agershuus include weaving and cotton spinning factories, paper and saw-mills, soap and oil works, distilleries, breweries, and tobacco manufactories. As a place of commerce Christiania has surpassed Bergen, and is now the first port of Norway; by the extension of its railway communications it has also become the chief emporium for the inland produce of the country. Its exports are wood, pitch, hides, seal-skins, oil and linseed cake, fish-manure, herrings, anchovies, stock-fish, and iron; and it imports wheat, salt, hardware, wines, preserved fruits, and fancy goods. The town is healthy and has an excellent supply of good water. In winter its average temperature is 23° Fahr., in summer 59°·9, giving an average for the year of 41°·4. The harbor during three or four months of the year is ice-locked, and ships then lie at Drobak, about 18 miles south of the town. The population, which in 1812 did not exceed 10,000, had in 1835 reached 21,757; and at the end of 1873 it was 72,725 or, with that of the suburbs, about 83,000. It is now (1890), 135,000.

CHRISTIANITY is derived from the adjective *Christian*, which is formed from the name *Χριστός* the Anointed, and means the religion introduced by Jesus Christ and communicated by Him to His circle of followers.

The Christian religion is the result of two factors, neither of which can be omitted if a true description is to be given. On the one hand there is the objective

element, which consists in the manifestation and revelation of God to his people for the purposes of salvation; and on the other side there is the subjective element, which consists in the appropriation of this manifestation and what it implies by man through faith. Both elements enter into and form the constituent elements of a new *life*, which all Christians share in common, and which is the essence of Christianity. This common life of Jesus and his people has many ways by which it can make itself seen and known. Christians have from the beginning exercised no small influence upon the ordinary, political and moral life of the world. They have been able to effect changes in generally received moral ideas and maxims. They have altered the course and character of legislation. They have introduced new opinions and beliefs. They have formed fellowships for worship, built places of meeting, held councils and assemblies, and in many ways given evidence of their presence and power in the world. But it must always be remembered that Christianity is neither the church simply, nor theology, nor Christian ethics. It is more than all these put together. The common life of Jesus and His people, which is the core of Christianity, manifests itself in an outward visible organization for the purpose of worship, which is commonly called the church (see CHURCH). But this worship is not Christianity; still less are the various institutions and ceremonies according to which worship is carried on.

Christianity cannot help powerfully affecting the whole of the intellectual side of man's life. The spiritual events on which it rests must have their rationale, and the spiritual forces which course through it must have their rule, and man must more or less comprehend them, and assimilate them. The Christian cannot help having a very different idea of God from that held by Aristotle or Plato. The Christian regards sin as something which affects the whole human race, while the pagan believes it to be the mistake or the misfortune of individuals. Christianity cannot help remoulding the beliefs and opinions of mankind, but theology and Christianity are two very different things.

The Christian is moved by moral impulses and guided by moral principles which are peculiar to himself. He cannot look on marriage, for example, from either the purely economic or the purely sensuous point of view. He cannot help reorganizing the scheme of virtues, and giving to the principle of love a preëminence which it has not in pagan ethics. Christianity cannot help putting a new face on morality, but Christian ethics and Christianity are still not one and the same thing.

Christianity includes all these and much more besides. It is nothing less than the whole round of human life in all its various departments in so far as it is related to and illumined and dominated by the divine love revealed in Jesus Christ. It is the presence of Jesus among His people and all that is implied in such a presence.

The close and inseparable connection between Jesus Christ and Christianity, which is implied in the name, and which study only makes more and more evident, produces the inevitable consequences that our view of the nature and characteristics of Christianity must depend on the answer which we give to the question which Jesus himself put to His disciples — "Whom do ye say that I, the Son of Man, am?" There are different theories of Christianity, because there are different theories of Christ, and in order to know how various conceptions of the nature of Christianity arise it is necessary to be familiar with the various views which men have held and hold about the nature and work of Christ. For example, different theories of Christianity arise when we ask what was the relation existing be-

tween Jesus and what went before Him, what was the relation in which Jesus stood to His contemporaries and His immediate followers, what is the connection which subsisted between Jesus and the future. All these inquiries reveal different theories about the nature and work of Christ, which are reproduced in different theories of the essential nature of Christianity, and enable men whose opinions and principles are widely different to call themselves, to their own satisfaction at least, Christians.

Jesus Christ claimed to have a definite relation to the past history of that people among whom He was born. In His teaching He put himself at the end of the Old Testament, and declared that He came to fulfill the Law and the Prophets. Christianity, therefore, however it be explained, has a close connection with Judaism, and the religion of Jesus cannot be considered without regard to the religion of Moses. This is now universally acknowledged, however variously the relation between the two may be explained. Criticism finds an ample confirmation of the claims of Christ in the intimate connection in which his teaching, life, and work stand to the Old Testament and the past life of the inspired Hebrew people. The whole of the Mosaic dispensation, the whole of the Jewish economy, with its prophecy, priesthood, and kingship, is recognized as summed up in the person and work of Christ. The Old Testament, which without Christ, is but a collection of sacred books written at different times and in various manners, is regarded when looked at through Christ as an harmonious whole of anticipatory revelation. Indeed, one of the chief differences which critical apologetics find between the Old Testament and other so-called sacred books is, that Christ is at the end of the Old Testament, and that no other scriptures have such a conclusion. But all this implies that Christianity is a development from Judaism, and that our idea of the one will be modified by our conception of the other. Those who refuse to admit that Judaism is more than one of the many natural religions of mankind can hardly admit the supernatural character of Christianity, or regard it in any other light than as the outcome, perhaps the highest outcome possible, of that side of man's nature which has been called by some the religious faculty. Those who attempt to derive Mosaic institutions from Egypt, who seek the basis of Hebrew prophecy in epileptic tendencies, and see nothing in the theocratic idea which was not suggested by ordinary kingship, cannot have much difficulty in analyzing Christianity into the natural development of the religious sentiment aided by a somewhat extravagant enthusiasm. Those, on the other hand, who find it impossible to accept the assumptions, and to get over the innumerable difficulties attending the naturalist theory of the Old Testament and of the history of the Hebrew people, find in Christianity something different in kind as well as in degree from all natural religions. Modern criticism even of the negative kind often indirectly supports the supernaturalist theory of the Old Testament and of Christianity, for its fundamental maxim, that waters cannot rise higher than their source, has proved the impossibility of explaining away Old Testament institutions and New Testament truths into merely the natural outcome of the religious faculties of a peculiar people. It has proved that the Old Testament religion contains materials which were not got from the intercourse of the Jews with other nations, and which did not arise naturally from the geographical position or the ethnographical characteristics of the Hebrew people. It has shown that the Old Testament religion was not a natural stream gathered from many a smaller rill, but came forth gushing, like the water of Hebrew History, from the Rock which contained

it; and in doing so it has given its testimony to the altogether unique and supernatural character of Christianity.

The relation of Jesus to His contemporaries, and of His disciples and their writings to the founders of the various ethnic religions, is another point whence proceed various views of the nature of Christianity. The old deist view, adopted and intensified by the Encyclopedists, that Jesus was a charlatan, that His disciples were partly cheats and partly dupes, and that Christianity was founded in fraud and perpetuated by deceit, has to all intents and purposes disappeared. But many believe that Christianity is only one of the many religions which are all of them true though none of them contain the whole truth. The modern notion of evolution has been called in to enforce this view, and Christianity is explained to be the most perfect development yet reached by the religious spirit of mankind; while the character of Jesus and the New Testament writings are explained on the same principle. On theories of this kind Christianity is the production of the natural forces of the period which gave birth to it, and contains nothing which cannot be traced back to the circumstances of the time, and the conditions of humanity. All such theories commonly rest on the general principle that the supernatural is impossible, and that whatever involves a miracle is *ipso facto* incredible, and then proceed by means of some special principle to explain the presence of facts which seem to imply the supernatural. (See article APOLOGETICS.) These principles are used to explain not so much the origin of Christianity itself as the origin of the Christian writings of the New Testament, and the production of the scheme of doctrine and morals therein contained. Perhaps the most ingenious of these theories is that cluster which has been produced by the writers of the Tübingen school, who have suggested the general method which has been almost universally followed by anti-supernaturalist writers. The method is by an ingenious negative criticism to separate between the original elements of Christianity, as these were present in the mind of Jesus and communicated by Him to His disciples, and those elements which were afterwards added by more philosophical adherents, and to explain how, out of the conflict between the two opposite tendencies of Judaism and anti-Judaism, the various and conflicting elements at last settled into a somewhat harmonious whole. By this ingenious method Jesus is reduced to the position of a Jewish rabbi, not much more noticeable than some of his contemporaries, and Christianity is not the religion of Jesus, but what grew out of that religion when it was subjected to the influences of Roman civilization, Greek philosophy, and Eastern theosophy. Such theories are unsupported by external, and rest confessedly on internal evidence. The weakness of internal evidence when unsupported by external is well known, and in this case the internal evidence is anything but strong. There are many serious objections to be taken to the Tübingen hypotheses (see article BIBLE) merely as hypotheses, and these difficulties are so great that it is almost evident the hypotheses would never have been put forward unless the anti-supernaturalist idea of Christianity had been taken for granted at the outset. There can be little doubt that if the supernatural be admitted these various hypotheses, while they suggest some difficulties which have not yet been solved, will be found to be at variance with the plain results both of external and internal evidence.

On the other hand those who believe in the supernatural take a different view of the relation of Jesus to His contemporaries. He was no mere Jewish rabbi, but spake as never man spake, and did what never man did. He was the manifestation of God, and came to give by

His presence, person, and work, as well as by what He said, the full revelation of God. He was while on earth the centre of the world's history, to whom all had looked forward, to whom all look back. And Christianity is not the simple product of the contemporary philosophical and religious systems, but is the embodiment of the unique appearance and work of Christ.

The relation in which Christianity stands to the future is also a basis on which various views of its nature have been rested, according to the theory of the peculiar powers of diffusion and propagation which it is supposed to possess. Anti-supernaturalists consider Christianity to be merely a moral force, acting through mere moral enlightenment; but this has already been sufficiently dwelt upon. There are, however, what may be called two Christian views of the *modus propagandi* of Christianity, which produce two of the real nature of Christianity itself. This difference of view is best seen in the variety of answers given to the question how Christianity subsisted after the departure of Christ, and how it subsists now from age to age, a more or less compact organic life in the world. The various answers given may be roughly placed in two classes as they lay stress on the spiritual or the mechanical side of the process, and enlarge on the spiritual or the mechanical influences at work. Those who take what may be called the spiritual view of Christianity hold that it was sustained after the ascension of Christ by the mission and work of the Holy Spirit, whose presence and influence enable it to go on from age to age, spreading in the world and developing according to the laws of its growth. And they believe that as the chief result of Christ's work consisted in a change of moral relation between God and those for whom Christ died, the spread and permanence of Christianity is purely moral, and manifests itself mainly in a change of will. Of course all this takes place in special ways and by appropriate means. These means are called the means of grace, and are usually held to be the Word, Sacraments and Prayer; but it is always to be understood that all such means are secondary or subordinate, and that the primary means of grace is the Holy Spirit, who works through these subordinate means, but may and does work in other ways. It is always understood that the operations of the Spirit cannot be limited to special actions nor confined by mechanical laws. On the other hand those who look at Christianity from what may be called the mechanical point of view are inclined to lay stress upon the means by which the Spirit works. They do not ignore the mission of the Holy Ghost nor His work, but are apt to say that He works only in certain prescribed ways, and through one set of means, and the tendency is to lay almost exclusive stress on one set of subordinate means — the Sacraments, and to represent that the persistence and spread of Christianity depend upon the constancy and correctness of sacramental ceremonies.

These opposite views of the nature of Christianity depend upon differences of dogmatic conception which may be briefly indicated. All through the one view, a change in the relationship between God's will and man's will is held to be the fundamental result which flows from the work of Christ. All through the other view man's nature rather than man's will is considered, and the result of Christ's work is looked on rather as a process within human nature than as a change in moral relations between man and God. In this way the progress of Christianity is looked on as the gradual semi-physical impregnation of human nature by the nature of Christ, a prolongation of the Incarnation rather than a development of the consequences of the finished work of Christ, to be produced by keeping Christ incarnate in the sacrifice of the Mass and impregnating mankind

by means of Transubstantiation in the Sacrament of the altar. The one view is the view of churches which have accepted the Reformation, the other is that of churches which have not.

These various conceptions of Christianity may be further illustrated by the views which are held by the partisans of each concerning the relations between Christianity and the Bible. The Bible and Christianity cannot be separated, but different opinions may be and have been held about the relation in which the two stand to each other. On the one hand, naturalists and those who take the mechanical view of Christianity are inclined to regard the Bible chiefly as a compendium of abstract truths, which may be condensed into dogmas and summarized in creeds; while those who take the spiritual view of Christianity regard the Bible as the medium which reveals God and His gracious dealings personally to the believing reader or hearer. To the one the Bible is a quarry of doctrines to be rationally criticised or implicitly accepted when once stamped as genuine by the church; to the other it is above all things a means of grace which the most ignorant can use and profit by. To the naturalist the Bible has been formed by the church, it is simply the natural production of the minds of those who formed the old Jewish and the early Christian communities, and grew to be what it is without the aid of super-human intervention. To those who have adopted a mechanical view of Christianity the Bible is also the product of the church, but of the supernatural power in the church, and has grown to be what it is because it has been sanctioned by the church. To those who take the spiritual view of the nature of Christianity, the Bible, on the other hand, is and always has been the formative power in the church and that round which the church gathers itself, for it is the presence of God speaking to His people.

Both naturalists and those who hold a mechanical theory of Christianity agree in holding that there is an external sort of development in the Bible, and that the church can go beyond the Bible, whereas those who hold the spiritual view of Christianity deny both these positions. Naturalists hold that one part of the Bible is beyond the other, and since the Bible is simply the outcome of man's religious thoughts and feelings in certain ages and places, they believe that men now may give utterance to thoughts and sentiments which in depth of feeling and insight may surpass those contained in the Bible. The Tübingen theologians, for example, believe that the New Testament is a series of deposits of religious truth, in which the truths taught by Jesus are supplemented by the teachings of His disciples, by the lessons of Paul, and by the theories of Christians educated in the philosophy of Greece; while Dr. Newman considers that the church, in virtue of a supernatural gift bestowed upon her, can add to the doctrines contained in the Bible according to certain well-defined lines of development. On the other hand those who hold the spiritual view of Christianity believe that the church can never go beyond the Bible, and that progress in Christian theology means greater insight into the manifestation of God in the Bible and greater power to interpret the supernatural facts and forces made known therein.

The various theories differ also in the closeness of connection which they think subsists between Christianity and the Bible. The naturalist and those who put the church above the Bible as the formative power in Christianity both make the relation between Christianity and the Bible a purely intellectual one, whereas those who hold by the spiritual view make the Bible a means of grace and not merely the quarry whence to hew theological dogmas. But the naturalist agrees with spiritual

Christians in maintaining the authoritative character of the Bible, while the mechanical Christian sets the Bible aside when it does not agree with church tradition. With the naturalist, however, the Bible is authoritative because it is the only set of documents which tell him about Christianity in its primitive state. It is authoritative because it is the only witness to the historical facts of Christianity, not because it is to be a law to him. To the spiritual Christian, on the other hand, the Bible is authoritative because it is a revelation of those spiritual forces and a record of those spiritual events on which Christianity still depends, and which teach him the way of salvation.

To sum up, then, Christianity claims to be no mere social revolution or natural step in the march of human progress. It is a religion whose sources are not to be found within man's nature but outside of it in the saving revelation of God in Christ, and Jesus is thus the author and giver of an eternal life which spreads itself and is maintained, not by mechanical contrivance, but by the living Spirit of God entering into human history, and building on the basis of reconciliation a kingdom of God which is both human and divine, and which comes and comes again and again in wave after wave of developing completion until the will of God is done on earth as in heaven.

Christianity began its career in the world at a time singularly propitious both politically, socially, and religiously for the advent of a new universal and spiritual religion.

Even apart from the entrance of Christianity the reign of Augustus over the whole Roman empire was an epoch-making period. Never before had the various races of mankind been united under one universal empire which promised to be permanent. For the Roman power was different from the governments of Asiatic adventurers and Greek warriors. That land where Rome planted her foot remained Roman. The ancient Asiatic empires had been for the most part the creation of victorious generals, and had been kept in life only by a tolerably rapid succession of dynasties; their power seemed to depend on the character of the individual ruler. And the empire of Alexander, while more enduring, was not coherent. But from the beginning of her conquests the spirit of Rome herself seemed always to be greater than the vigor and ability of her generals and rulers, and she alone of empires seemed to be indifferent to the precarious stability of government ensured by regular dynastic succession. "The Romans conquered like savages, but ruled like philosophic statesmen, till, from the Euphrates to the Atlantic, from the shores of Britain and the borders of the German forests to the sands of the African desert, the whole Western world was consolidated into one great commonwealth, united by bonds of law and government, by facilities of communication and commerce, and by the general dissemination of the Greek and Latin languages." The world had a centre as it never had before, and the golden threads of well-established government connected all the world with Rome. Roads were made connecting Rome with the remotest countries, and a system of posts established which provided for easy communication with the capital. Military colonies carried Roman usages and manners, civilization and privileges, to the remotest corners of the empire. Magnificent cities were built in such outlying dependencies as Britain, Gaul, and Germany. The arts and civilization were gradually extending their dominion and subjugating the most distant and most desolate places. To all this Augustus added a more perfectly devised centralization which made the empire a more compact whole, so that any new influence made its throbs felt from centre to extremities in a wonderfully short time. The

world was made ready for the furtherance of the spread of opinions as it had never been before, and for becoming spell-bound by invisible spiritual laws like those which Christian morality weaves around its disciples. The time of Augustus, if it was the beginning of the decline and fall of the Roman empire as a visible earthly dominion, was also the beginning of its permanent establishment on earth in a purely invisible way, when its policy, statesmanship, and legislation were to pass into all the nations of the earth and become part of their lives so long as the world endured.

Socially, too, the world was wonderfully ripe for the entrance and spread of a universal religion. Slavery, it is true, flourished, and there were conquerors and conquered; privileged and unprivileged classes. But the beginning had already been made of that lavish distribution of Roman citizenship which laid the foundation of a common political life throughout the empire.

The religious character of the times was also marvelously adapted for furthering the advance of Christianity. The old national creeds were fast disappearing, and were being submerged in the vast cosmopolitan religion of Rome. It was the wise custom of conquering Rome to do nothing to disturb the religions of the peoples subdued by her armies, and commonly the principal deities of the conquered nations were added to the overcrowded pantheon of Rome. This religious tolerance or indifference gradually began to eat the heart out of paganism, and all over the civilized world the pagan creeds sat lightly on their worshippers. The various deities were looked on as interchangeable manifestations of a supreme fate-power who reigned alone in the invisible world, while in this visible earth the genius of Rome seemed to be the one object of worship. The old national religions with their well-defined outlines and limits were being gradually effaced, and men were longing for some religion which, while it had the universal character which the times required, should have more individuality and personal power in it than were supplied by the thoughts of a supreme spiritual fate, or by the mere materialist conception of the genius of Rome. And all this bred a thirst for information about sacred things which was unknown in earlier times. The claims of conflicting religions were philosophically discussed, and amid all the gross materialism of the period there were belongings for some deeper, truer religion than any they had known. These longings were further stimulated by the gradual but almost universal advance of new religious ideas coming from the far East, which was then regarded as the cradle of science and philosophy. In the 5th century before our era the vast Buddhist movement had overspread all the East from Thibet to Ceylon, and the Greek and Roman conquests in Asia brought Europe within the intoxicating influence of its subtle religious ideas. This strange Eastern theosophy, which during the first four centuries of our era is known by the name of Gnosticism, had a most powerful influence on the old religions of the West, which seemed to dissolve under its touch. Everywhere in the art and literature of the period we find its prevalence in the West during the age of Augustus and his successors. It insensibly undermined the beautiful mythology of Greece and the harder sterner religion of Rome, and substituted for them a religion in which, if fear was the prevailing emotion, worshippers still felt that there was more spirituality and greater claims to universality than their old national religions could give. And thus the gradual defacement of old religious outlines, the stimulation of strange cravings to know the mysteries of nature and of worship, and the longing for rest in a universal religion of deliverance prepared the world for the coming and spread of the religion of Jesus Christ.

The great problem Christianity had to face and to solve was one of no ordinary difficulty, and one involving a number of side issues which greatly perplexed the early church. The practical side of the problem as it met the early Christians may be put thus:—How could Christianity, which was rooted in Judaism, be at the same time a religion equally open to Jew and Gentile; how could the exclusiveness of Judaism and the utter want of exclusiveness in Christianity be reconciled with each other? And the solution of this problem brought the early Christians into conflicts of a special kind with the government and philosophy of the times.

When Jesus proclaimed His mission, and when He sent forth His disciples on preaching tours to make known himself and His work, we find the phrase "kingdom of heaven" perpetually occurring; and it was this phrase and what it suggested that brought the early Christians face to face with the great problem they had to solve. When Jesus announced that the kingdom of God was at hand, His message was quite intelligible to His Jewish audiences. The phrase was sacred and familiar, and their thoughts went back at once to the old theocracy of Israel. And when after the death and the ascension of our Lord, His Jewish believers got a truer and deeper insight into the meaning of the expression, still the idea it conveyed bound Christianity, with bands that could not be untied, to Judaism, the Old Testament Scriptures, the miraculous life of the Jewish nation, and the ideal Israel long expected and long announced. Throughout the Old Testament Scriptures we find three ideas connected with the thought of the kingdom of God. It implies first and primarily the share in the inheritance in the land which the Lord gave to His people and to their children; and then it implied security in this possession, deliverance from Egypt and a succession of enemies, and, lastly, the possession of an inward spring of covenant life, which guaranteed them both salvation and possession. These three things were the historical and material basis on which rested the whole spiritual and prophetic superstructure of the ideal kingdom of God, which lay enshrined in the heart of every devout Hebrew. When our Lord by His preaching, by His life, death, and rising again, and by His mission of the Holy Spirit, gave new meanings to these thoughts, He only widened, deepened, spiritualized, and gave personal point and application to what the prophets and holy men of old had already declared. And when He and His apostles guided by His Spirit taught His early followers that His kingdom of God meant possession of the spiritual blessings of God's grace, and deliverance from sin, death, and Satan, and a life of adopted sonship which guaranteed them in all these blessings, devout Jews could feel that now they were only learning what the prophets had taught, and they rejoiced in the thoroughgoing oneness which existed between the kingdom of God as proclaimed in the Old Testament and the kingdom of heaven which Jesus preached. But if it was a *sine qua non* that Christianity should spring out of the Old Testament Scriptures and be identical in all essentials with the Old Testament church, it was no less necessary that it should be now a religion for Gentiles as well as Jews, and here the difficulty emerged. Could the old Jewish church be carried over into the Christian church if all that outwardly distinguished it were abolished? Could the continuity be preserved if the ceremonies and restrictions which made up the visible life of the Old Testament worship were no longer to be observed? Would not the Old Testament church be entirely destroyed and the continuity between it and the New Tes-

tament church be done away with if the Old Testament ceremonial law was abandoned? So long as the members of the Christian church were Jews only or Gentiles who had become proselytes the difficulty was not felt. The Christians had not openly broken with Judaism, and were acknowledged even by their Jewish opponents to be a Jewish sect,—a sect everywhere spoken against, it is true, but still a sect just as the Sadducees were a sect. But whenever Gentiles who were not proselytes became believers then a fierce struggle arose between those who thought that the continuity between the Old Testament and Christianity could not be kept up unless it were visibly perpetuated in those observances which distinguished the Jewish religion from all others, and those who were contented with a continuity which was more of the spirit than of the letter and the form. The practical shape which the struggle at first assumed was, whether Gentiles could be Christians without first becoming proselytes, and whether Jewish Christians must cease to be believers if they associated with Gentiles who had not been circumcised, and had not rendered themselves servants to the law of Moses. To understand the difficulty rightly it should be remembered that when the difficulty arose the New Testament canon was not in existence, and the church had to be guided mainly by the Old Testament Scriptures and the memory of Jesus preserved by the apostles. In spite of what has been advanced by critics of the Tübingen school, it seems evident that the apostles, one and all, in their letters to the church faithfully followed out the solution which Christ's discourses gave. In these discourses our Lord carefully distinguished between the permanent and temporary elements in the Old Testament dispensation, and assumed that His office as Messiah gave Him full authority to abolish or to alter the latter. He also pointed out that the permanent parts of the Mosaic economy were the various modes of expressing that love to God and to man which he declared to be the sum of the law and the prophets. These were unalterable, but any change might be made in the subordinate and temporary elements, if only this great principle was more fully and better expressed by the change. This leading thought Christ used as much to detect and condemn false developments of the Mosaic economy (*e.g.*, Pharisaism) as to test its true development in Christianity. The apostles of Jesus carried out the principles of their Master. There is not a trace in the epistles of Peter, James, and John of the idea that salvation and entrance into the kingdom of God could only be obtained by those who were first Jews and then Christians. There is no statement, for example, that Gentiles must be circumcised before they can be baptized. On the contrary, James speaks of the perfect law of liberty, and Peter and John have expressions equally strong. Within the writings of the apostolic circle everything goes to show that the church was taught from the beginning that Christianity was not to be confined within the limits of natural or adopted Jewish nationality.

But when we turn to the Acts of the Apostles, and to the epistles of Paul, especially to the Epistle to the Galatians, we find that the apostolic solution of the difficulty was not acceptable to the early Jewish Christians, and was not accepted by many of them. We even find that the practice of members of the apostolic circle was not always in accordance with the principles which they had enounced in accordance with the guidance of the Holy Spirit. There was a strong ultra-Jewish party in the early Christian church, which was able in some measure to control the conduct of the apostles themselves. And this was what was to be expected. Men who had been trained in Judaism, where the connection

between religion and politics was so very close, whose religious thoughts were always expressed in outward ordinances, could scarcely avoid insisting upon some visible connection between Judaism and Christianity. They could not see that Christianity was the completion of Judaism if the practices of the Mosaic economy were not kept up. Thus we find at least two parties, a Judaizing and a Gentile party, in the early church. At first the Jewish party was so strong as to force a compromise upon the leaders of the Gentile church, and require that every Gentile Christian should at least become a proselyte of the gate by abstaining from things offered to idols, from things strangled, from blood, and from *πορνεία* or a breach of the Old Testament regulation about marriage; and it is probable that Jewish Christians were required to keep up all the practices of the Jewish religion and more especially to share in the sacrificial worship of the temple. Afterwards this Jewish party grew weaker, and it became the universal belief in the early church that Christians born Jews did not need to observe the ceremonial law of Moses or to share in the temple-worship, and that Christians born Gentiles did not require to show, by keeping certain Jewish regulations, that they were believers in a creed which was a development of Old Testament ideas. The capture of Jerusalem and the destruction of the temple separated the Christian Jews who were of the sect of the Pharisees from their fellow Christians, and the severe persecution of Jewish religion and rites which followed the revolt under Bar Cochba sent most of them over into the ranks of the Essenes, and thus the Christian church was left in peace to reconcile its intimate connection with Judaism with its abandonment of Jewish ritual on the principles of Christian liberty. But in solving the problem the early Christian church was scarcely true to the principles of its Master. In order to defend more strenuously their separation from Judaism, it was customary for the fathers of the church to look at Christianity as supplying in detail all that Judaism possessed, and this led them almost as far from the fundamental principles of continuity laid down by Christ as the old Judaizers had gone. They required a new law to set over against the old law of Moses, a new service to take the place of the temple service of the Old Testament, a new daily sacrifice, "the new law's new oblation" instead of the sacrifices of Moses, a new ritual which after it had gradually grown complex enough was found to correspond bit by bit with the ritual of Jerusalem, and a new priesthood whose functions were to be not unlike the duties of the sons of Aaron. In church traditions, a ritual of worship, and a service of priests, they found the proof of their relation to the religion of the Old Testament, and forgetting the unseen continuity of sameness of spiritual principle, found a consolation in a fancied similarity in external routine of worship. In this way early Christianity succeeded and failed in realizing to herself the real continuity between the Old Testament and the New Testament kingdoms of God.

But if early Christianity found it difficult to reconcile the New Testament idea of the kingdom of God with the Old Testament conception, it was no less troubled when it came to work out this New Testament thought on the broad basis prepared for it by the existence and character of the Roman empire. There were difficulties without as well as difficulties within. Christians are men with bodies as well as souls, and Christian ideas tend to make sensible shape, sometimes false and sometimes true. No sooner had Christianity shaken off its Jewish thralldom than it seemed eager to betake itself to a new slavery—eager to lay down the kingdom of God on lines already furnished by the government of pagan

Rome, or the creeds of pagan philosophy. At all events we can trace in early Christianity the workings of two subtle influences, the one of which strove to reduce the kingdom of God to a material and earthly empire, while the other would have dissolved it into a system of philosophy. The ecclesiastical empire of the Middle Ages and the scholastic theology overthrown at the Great Reformation were slowly built up by principles which Christianity almost unconsciously assumed during her long struggle with pagan Rome and with the pagan philosophy.

The relation of Rome to Christianity was very peculiar. Both aimed at world-wide dominion, and the one was the very incarnation of polytheism, while the other forbade in the sternest terms all idolatrous worship. The Christians, while citizens of the great empire which ruled the world, found the idolatry which they hated and denounced interwoven inextricably with the law of the land, possession of property, social observances, and public ceremonies. And Christianity had scarcely emerged from Palestine when it found itself engaged in a hand-to-hand struggle with the imperial power of Rome herself.

Rome never treated Christianity as other religions were treated. Gibbon tells us that the Romans were already somewhat intolerant of Judaism and extended their intolerance to the new Jewish sect, somewhat more intractable than their neighbors, which Christians were supposed to be. He also shows that Christians who had neither temples nor synagogues were supposed to be atheists, and so beyond the pale of toleration, and that the secret assemblies of Christians were supposed to have a hostile political meaning. But something more is required to explain the uncompromising hostility of Rome, especially when we find that latterly that hostility was strongest under the greatest and noblest emperors. Since Roman toleration was founded on public policy, there was an end of it with regard to a religion which was of no use in curbing a conquered people. The Christian religion was *nova* and *illicita*; it was not a national religion nor a recognized faith, and was a new and unaccountable phenomenon which might be, and most probably was, fraught with danger to the sacred state. We find, too, in many of Rome's ablest statesmen a strange instinctive dread of Christianity. They made inquiries about it and were watchful of it, and yet could get no real insight into it. They could not help noticing how in spite of edicts and persecutions Christianity was rapidly increasing; they saw how, with a daring which to them was simply inexplicable, it was nothing loath to match itself against the power of Rome. To the ears of these dark and jealous emperors came tidings of Christianity copying the jurisdiction of Rome in its ecclesiastical divisions of the land, of its success in the large towns in the empire, of its entrance into the army. They saw, too, what Constantine was the first to make use of, that Christianity acted in such a way upon the physical frame that Christian soldiers were stronger and braver than their fellows, and man for man and battalion for battalion were more than a match for the pagans. Above all, they heard rumors of a new kingdom which the Christians were to establish, of confidently expressed hopes that the kingdom would soon come, and of openly asserted resolutions and prophecies that it would be established on the ruins of Rome itself. And, on the side of the Christians, Tertullian was ready to boast that in a few years the Christian empire had more extensive boundaries than the Roman, and that Christian soldiers had penetrated and triumphed in regions where the Roman arms were unknown or defied. Christian martyrs marching to the arena confidently predicted the speedy overthrow

of the cruel paganism which sent them there. As the struggle deepened, too, there entered a distinctly new element on the Christian side, and the contest became not merely one of the true religion against a false paganism and a pagan and persecuting state; it became a battle between two kingdoms. The Christian bishop and the Roman governor were two rival authorities, viceroys in two warring empires; and the saints would inherit the earth, when the church ruled instead of Rome as the mistress of the world. During the long struggle between Rome and Christianity we see this subtle influence entering into and withering the true spiritual conception of the kingdom of God, until at last it is almost transformed into an earthly empire. St. Augustine has seized on and represented this idea with sublime dramatic power in his *Civitas Dei in Peregrinatione per Terras*, where the *Civitas Dei*, or the church, is set over against the *Civitas Terrena*, or state, and where the kingdom of God, however grandly pictured, is almost as material, earthly, and sensible as the empire of pagan Rome. From this fatal influence have come all the attempts to realize the universality and catholicity of the church in a purely external or visible way, and the failure to understand how Christianity may be all-embracing without *visibly* covering and controlling the earth.

The history of the world presents no phenomenon so striking as the rise and early progress of Christianity. Originating in a country not remarkable for any political, commercial, or literary influence, emanating from One who occupied an humble sphere in the community amidst which He appeared, and announced in the first instance by men of mean extraction, of no literary culture, and not endowed with any surpassing gifts of intellect,—it nevertheless spread so rapidly that in an incredibly short period of time it had been diffused throughout the whole civilized world, and in the fourth century of its existence became the recognized and established religion of the Roman empire. When it is remembered that this result was achieved not only without the aid of any worldly influence, but in the face of the keenest opposition on the part of all the learning, wealth, wit, and power of the most enlightened and mightiest nations of the earth, the conclusion is strongly forced upon us that a power beyond that of man was concerned in its success, and that its early and unexampled triumphs afford an incontestable proof of its inherent truth and its divine origin. Nor has the rapid advance of Christianity been confined to its earlier years. "After a revolution of fourteen or fifteen centuries that religion is still professed by the nations of Europe, the most distinguished portion of human kind in art and learning as well as in arms. By the industry and zeal of Europeans, it has been widely diffused to the most distant shores of Asia and Africa, and by means of their colonies has been firmly established from Canada to Chili in a land unknown to the ancients."

The strong and deep influence which Christianity soon began to have even over the lives and opinions of those who were not Christians, is a far more striking testimony to its paramount claims than the rapidity of its spread. The struggle of Christianity with Rome has already been alluded to, but even before Rome gave up the struggle in despair, before the last persecution, and before the triumph under Constantine, the influence of Christianity was making itself felt morally, socially, and politically, while its influence on intellect and science was no less remarkable.

The organization of Christianity belongs more properly to the description of the church, but it is impossible to pass the subject without any allusion. Christianity, which has been described to be a new life which takes an organic form and grows like other liv-

ing things, cannot help taking to itself an external form or organization which approaches perfection in the proportion in which it is adapted to express the life which it contains. On the one hand, the external form of Christianity must not be confounded with Christianity itself, and, on the other, it must be remembered that Christianity does, and must from its very nature, embody itself in an external organization. And a twofold danger arises from the neglect of this principle, when, on the one hand, the machinery of Christian worship and discipline is mistaken for Christianity itself, and when, on the other, it is mischievously imagined that the purity of Christianity depends on the realization of an impossible invisibility or absence of organization.

It only remains to allude briefly to the corruptions of Christianity. It has been already stated that Christianity had a fourfold conflict to maintain with Judaism, Rome, Gnosticism, and an enthusiastic and sometimes immoral pietism. If we add to these pagan superstition, we shall have the chief heads of the opposition which Christianity had to encounter. After its triumph these sources of anti-Christian action still remained to be contended against, and became the chief springs of its corruption. The spirit of Judaism, of Roman worldly policy, of pagan superstition, of pagan philosophy, and of immorality entered into Christianity and tended to corrupt it.

One of the earliest causes of the corruption of Christianity was the attempt to translate the Christian kingdom of God into a visible monarchy in which the saints inherited the earth in a literal way. The Church was the more tempted to enter into this course during the period of the decay of the Roman empire, when civil authority became very weak and the real rulers were in many cases the principal clergy of the place. The consciousness of power inspired a desire for its insignia, and soon the bishop and superior clergy adorned themselves in the official robes of Rome's municipal and provincial officers. This whole tendency received a great impulse during the period that Rome was abandoned by her emperors, and when the chief citizen in the imperial city was undoubtedly the Christian bishop. How all this tended to corrupt Christianity is very apparent. In the first place it generated the idea that the Christian kingdom is a visible monarchy and that its marks are such as can be seen; and it led Christians to postpone everything to the earthly aggrandizement of the church. It translated spiritual forces into mechanical and physical equivalents. The very term spiritual, which belongs to the affections and emotions and thoughts and will, to the whole inward life, was used to denote whatever belonged to the church or the clergy. Land became spiritual when it passed into the hands of the bishops; men were spiritual if they were servants of the church; things were spiritual if they were church property. There resulted, in short, a gradual coarsening of ideas, and all that was most inward, hidden, and sacred was forgotten in the strife for worldly possession and power and wealth. On the other hand, this tendency worked a good deal deeper. Worldly men who found their way into the ministry were tempted to favor any kind of superstitious error that tended to bring them profit and power. The people were often disposed to fancy that the priests could serve God in their stead, and that there were mysteries in religion which the priests understood, but which the laity need not know anything of and ought not to inquire into. Hence they were ready to follow blindly the guidance of the priests in religious matters, just as a man trusts his legal concerns to his lawyer, doing what he directs and not considering it necessary himself to study law. Ambitious and worldly-minded rulers, too, are generally glad to make

use of religion as an instrument for securing the submission of the people to tyrannical oppression, and for aiding their ambitious views when they seek to subdue their neighbors under the pretext of propagating the true faith. Then again, this idea tends to breed false views of Christian unity. It leads men to think that they cannot be true Christians unless they belong to one community which is visible and universal. And this idea tends to keep up and intensify other errors. For if a man is convinced that all Christians are bound to belong to some one community on earth, he will dread nothing so much as separation from that church, whatever it may be, which he considers as having the best claim to be that one community.

Many corruptions of Christianity have been either introduced or favored and kept up by moral corruption in the members of a Christian Church. For it belongs to the true gospel to purify and also to elevate the moral character. Hence there is a complete and constant opposition between genuine Christianity and all the evil and base propensities of man's nature. Every kind of depravity or moral defect therefore predisposes men either to reject Christianity altogether, or else to introduce or to accept some erroneous views of it. And there is no kind of religious corruption against which men are usually less on their guard. They are well aware, indeed, that there is a danger of men's falling into sin in violation of the precepts of religion, but they are too apt to think that a man who has embraced a true faith will therefore be made a good moral man. This erroneous idea appears in its most extreme form in the views of those who have been called Antinomians, and who have appeared in all ages of the church from apostolic times down to our own day. They appear to believe that whoever has faith is thereby lifted into a new life to which the moral laws of the old life are inapplicable, and are therefore privileged to do without censure or danger what others would be condemned for.

Nothing perhaps has tended more thoroughly to corrupt Christianity than the introduction into it of superstitions which are really pagan themselves, or have been suggested by pagan practices. Paganism, unable to oppose Christianity successfully, has done much to corrupt it, and in numberless ways has made inroads upon its purity.

The corruption, which entered into Christianity from Judaism have already been noticed, and the corrupting effects of the reproduction of the symbolic temple worship and the Jewish idea of priesthood need not be again referred to. It only remains to speak of those corruptions which have arisen from the contact of Christianity with pagan philosophy. The special corruptions which have arisen from this contact have been called heresies, and have been of various kinds and degrees, but of these we need not speak. A more subtle influence, and one to be even more jealously guarded against, is the transformation of Christianity itself into an intellectual system of philosophy, or the supposition that it is the intellectual side of Christianity which is the only one or the chief. The inevitable tendency of such an impulse is to remove Christianity as a system to be apprehended from the Christian people, and to reduce their relation to it to a submissive assent to Christian doctrine as that is manufactured for them by the dogmatic machinery of the church. And thus, in place of that whole-hearted trust which waits for personal illumination, there is on the side of the people a blind assent, and on the other side the claim to an infallible system of intellectual truth.

The continual and steady growth of Christianity, its vigorous life in spite of various seasons of unavoidable

ebb and notwithstanding the presence of all these and other sources of corruption, and its continual rejuvenescence, are no ordinary proof of its divine origin as well as of its supreme fitness for the position in the world which it claims to occupy.

CHRISTIANSAND, a fortified seaport town of South Norway, capital of a stift of the same name, on a fiord of the Skagerrack. The town, which is surrounded on three sides by water, is defended by the fort of Fredericksholm, at the mouth of a deep and well-sheltered harbor. The houses, mostly of painted wood, are regularly built, and the streets are wide. Christiansand has a fine cathedral, and a cathedral school; it is a naval station, and the seat of a bishop, and of a stiftsamtmand or governor of the province. The town was founded in 1641 by Christian IV., after whom it was named. In 1807 it was held for a time by the British. Population, about 20,000.

CHRISTIANSTAD, a town in the south of Sweden in $56^{\circ} 2' N.$ lat. and $14^{\circ} 9' E.$ long., the capital of the laen of the same name, stands on a lake formed by the widening out of the Helge river, in a swampy situation, about ten miles from the shores of the Baltic. Population, about 7000.

CHRISTIANSUND, a seaport town on the west coast of Norway, in the amt of Romsdal, 85 miles W.S.W. of Trondhjem. Population, 6,000.

CHRISTINA (1626-1689), queen of Sweden, was the second daughter of Gustavus Adolphus and Mary Eleanor of Brandenburg. Disappointed in his hopes of male offspring, her great father reared her in virile fashion, and left her, on his departure for Germany (1630), in the hands of Axel Oxenstiern, the famous chancellor, and of Johannes Matthiæ, his own almoner, who was to ground her in sciences and in Latin and Greek.

The battle of Lützen placed Christina on the throne in her sixth year. She was proclaimed queen without delay, but the government was vested in a council of regency, composed of the five chief dignitaries of the kingdom, with Oxenstiern at their head. Placed under the care of her aunt Catharine, the countess-palatine, the little queen made rapid progress in the direction indicated by Gustavus. At ten years old she dressed usually in boy's clothes, and was wont to hunt and go on long journeys on foot and on horseback; and she found means, in the midst of these occupations, to acquire several sciences and modern languages, in addition to the classical tongues. In 1636 Oxenstiern returned from Germany, and again assumed the direction of affairs; and from him, her father's friend and minister, Christina received the ablest lessons in statecraft and the art of government that the age could furnish. At sixteen, the confidence reposed in her was such, that she was generally solicited to enter on the exercise of her functions as queen regnant. This proposal she declined, however, nor would she listen to any renewal of it till two years later (1644), when the conduct of the state was placed in her hands. For a time all went well. The members of the council of regency were confirmed in their places; the kingdom was flourishing within and without; the war with Denmark and Germany promised to bear good fruits. Christina, however, had determined on peace; in this she was opposed by Oxenstiern; but during the following year a treaty was signed with Denmark exceedingly advantageous to Sweden. Germany was not so easily dealt with; Christina was compelled to form a secret conspiracy against her own ministers; and by her efforts, ably seconded by those of Adler Salvius, a young diplomatist to whom she had intrusted the affair, the peace of Westphalia was concluded (1648), and the Thirty Years' War was brought to an end.

The eyes of Europe were now fixed on the young queen. Offers of alliance came to her from all quarters—from Holland and Spain, from England and France. She continued for some time to deserve the esteem with which she was regarded, reforming abuses, filling the treasury, and encouraging arts and commerce to the utmost in her power. It was the general wish that she should marry, and many suitors were proposed. Christina excused herself in an epigram; and to rid herself of further importunities she named her cousin Charles Gustavus her successor, presenting him in that capacity to the assembled estates in 1649, and in 1650 she solemnly took to herself the title of king.

At this time the change would seem to have come upon Christina's conduct that was to determine so much of her subsequent career, induced apparently by the maxims of a certain Bourdelot, a French physician in her employ. The practice of a cynical epicureanism became her only occupation. The reign of favorites began; and with it the welfare of the kingdom commenced to decline. Honors, dignities, and treasure were lavished on the most worthless of men; and discontent grew rife everywhere beyond the palace. Christina was alarmed, and had thoughts of abdication (1651); but her designs were vigorously opposed by Oxenstiern, and for a while she yielded to the pressure brought to bear on her by the chancellor and his party. The favorites (among whom were Whitelock, Cromwell's envoy, Pimentelli, the Spanish ambassador, and Chanut, the representative of France) were kept in the background, and Bourdelot, the master cynic, was sent out of Sweden. Christina encouraged the presence of artists and men of science; Descartes, an exile from his native land, was received by her with great consideration; she made large purchases for the Swedish museums; she corresponded with Vossius and Salmasius, with Puffendorf and Grotius, with Naudé and Bochart; she did her best to rule and to be respectable. But she was weary of the roughness and coarseness of the land of her birth; she longed for freedom and change; she was conscious, moreover, of her own gradual degradation in the eyes of the subjects she despised. The conspiracy of Mesenius, the chiefs of which perished on the scaffold, gave her an excuse and the opportunity she had long desired. In 1654 the estates were convoked at Upsala, and she resigned the crown to her cousin Charles Gustavus.

She had reserved to herself her own independence, an absolute authority over such of her subjects as should accompany her, and the revenues of Pomerania and Mecklenburg, with those of several Swedish provinces. Quitting the habit of her sex, she left her kingdom, traversed Denmark and Germany, and established herself at Brussels. Here she remained for nearly a year, signaling her sojourn by the private renunciation of Lutheranism, which she afterwards solemnly and publicly abjured at Innsbruck. From Innsbruck she went to Italy. She entered Rome on horseback, was received, confirmed, and baptized Alexandra by Alexander VII., and was lodged in the Palazzo Farnese, where she surrounded herself with artists and amorists, with philosophers and scientific mountebanks. In 1656, having quarrelled with some of the College of Cardinals, she made her first trip to France, where she had much success as a spectacle, called on the king at Compiègne, was lodged at Fontainebleau, and stayed for some time in Paris. She was most gracious with the men of letters and science, but she outraged all the women by her expressions of contempt for their sex and themselves (which called forth many illiberal remarks concerning her spare figure and humped shoulder), and declared that Ninon de l'Enclos was the only one of them worth her regard. She also attempted to instill a few of her

own political theories into the bosom of Mazarin; but that subtle diplomatist resisted, and when in the following year after a journey to Italy, she attempted to renew her visit, he found means to have her detained at Fontainebleau. It was here that, after writing to Cromwell, who would none of her, she caused her favorite Monaldeschi, in revenge for the betrayal of her secrets, to be put to death by the captain of her guard. The public indignation was great, and she was ordered to leave France. Leibnitz, however, apologized for the crime, and she took no notice of her expulsion till 1658, consoling herself meanwhile with the society of a kindred spirit, Madame de la Suze. In that year she returned to Rome; and the Swedish revenues coming slowly in, Alexander allowed her a pension. In 1660 Charles Gustavus died, and Christina returned to Sweden, to claim the throne she had quitted so lightly and regretted so bitterly. But the Swedes had lost their old reverence for the daughter of Gustavus; her new religion and her treatment of Monaldeschi had made them wary of her; and she was compelled to sign another and more binding deed of abdication, and once more to retreat to Rome. She reappeared in Sweden some six years afterwards; but the exercise of her faith was denied her, and she withdrew to Hamburg, where she begged in vain the empty crown of Poland, and whence she made for Rome once more. In that city she lived for some twenty years, quarrelling, intriguing, and collecting, corresponding with men of letters and founding academies, active in the Molinist controversy and in the cause of the Venetians besieged by the Turks, consumed by the desire of that political power which she had thrown away, and endeavoring to assert her vanished influence to the last. She died, with great composure, in 1689, and was buried, under a sonorous epitaph, in St. Peter's. Her magnificent library was purchased by Alexander VIII., her collection of antiquities and part of her paintings by Odescalchi, a nephew of the Pope, and the remainder of her pictures by the regent Orléans.

CHRISTINE DE PISAN (1363-1431), though French by education and renown, was of Italian stock, and was born at Venice. When she was five years old, she went to her father, a councillor of the Venetian Republic, at Paris, where he held office as astrologer to Charles V. Educated at that prince's court as completely as the age would allow, at fifteen Christine married Étienne du Castel, Charles' notary and secretary. After the king's death, her father lost his appointment, and died soon after of grief and infirmity; and his decease being presently followed by that of her husband, she found herself at five-and-twenty without a protector, and with three children depending on her for bread. The vexations and discomforts attendant on several suits at law determined her to have recourse to letters as a means of livelihood. Between 1399 and 1405, as she herself declares, without reckoning minor pieces, she composed some fifteen important works. Neither fame nor protection failed her. The earl of Salisbury, in Paris on the occasion of the marriage of Richard II. with Isabella of France (1396), took her eldest son, and reared him as his own; the boy, after Salisbury's death (1400), being received and nurtured by Philip of Burgundy, at whose solicitation Christine wrote *Le Livre des Faits et bonnes Mœurs du Saige Roy Charles*. Henry IV. of England desired her to make his court her home, and she received a like invitation from Galeazzo Visconti, tyrant of Milan. She preferred, however, to sojourn in France, where she enjoyed the favor of Charles VI., the dukes of Berry and Burgundy, the prince of Guienne, and others. Of the circumstances of her death nothing is known. A son of hers, however, Jean du Castel, is said to have attained

distinction as a poet under Charles VII. Christine de Pisan wrote voluminously in prose and verse. Her works are by no means devoid of merit, nor altogether without interest even at the present time, though the language in which they are written is crude and imperfect, and they sin too often on the side of diffuseness. They are principally of a moral character, Christine seldom interfering in the political questions of her age save to clamor for peace and unity.

CHRISTMAS DAY (French, *Noël* from *Dies natalis*; German, *Weihnachtsfest*; Old Eng. and Scand., *Yule*; Ang.-Sax., *Geol*), a festival of the Christian church, observed on the 25th of December, in memory of the birth of Jesus Christ. There is, however, a difficulty in accepting this as the date of the nativity, December being the height of the rainy season in Judea, when neither flocks nor shepherds could have been at night in the fields of Bethlehem.

The Christian communities which keep Christmas (as the Roman Catholic, Greek, Armenian, and indeed all Episcopalian churches, and the Lutherans) would probably agree in laying more stress on keeping a day in memory of the Nativity, than on success in selection of the actual and precise date of the event. Indeed in the parallel case it does not appear that Good Friday and Easter lose anything of their respective associations from their variableness in different years. Although as regards Christmas an ingenious case on behalf of the month of October has been made out from what is known concerning the course of Abia, (Luke i. 5,) it does not seem possible to arrive at any certain conclusion. By the 5th century, however, whether from the influence of some tradition, or from the desire to supplant heathen festivals of that period of the year, such as the *Saturnalia*, the 25th of December had been generally agreed upon. Augustine expressly mentions this date (*De Trin.* iv. 5); and Chrysostom seems to speak of it as a custom imported from the West within ten years. Before that time it appears to have been kept conjointly with the feast of the Epiphany on the 6th of January. It is generally considered to rank third among the festivals of the church (Easter and Whitsuntide alone being placed above it) and to have a joy peculiarly its own.

In all civilized countries the annual recurrence of Christmas has been celebrated with festivities of various kinds. In none, however, was it more joyfully welcomed than in England, where even still the "old honor" has not altogether fled. In that country it was the custom on Christmas eve, after the usual devotions were over, to light large candles and throw on the hearth a huge log, called the Yule Log or Christmas Block. At court, and in the houses of the wealthy, an officer, named the Lord of Misrule, was appointed to superintend the revels; and in Scotland a similar functionary used to be appointed under the title of the Abbot of Unreason, till the year 1555, when the office was abolished by Act of Parliament. The reign of the Lord of Misrule began on All-Hallow eve, and lasted till Candlemas day. The favorite pastimes over which he presided were gaming, music, conjuring, dipping for nuts and apples, dancing, fool plough, hot cockles, blind-man's buff, &c.; and various Christian preachers (as, for instance, St. Bernard) have taken occasion to remonstrate with their flocks for paying too great attention to the festive character of the season, and too little to its more solemn aspects. The favorite dishes for breakfast and supper at this season were the boar's head with an apple or orange in the mouth, and set off with rosemary, plum-pudding, and mince pies. The houses and churches were decked with evergreens, especially with mistletoe, to which a traditionary sacredness has attached since the days of the Druids.

CHRISTOPHER, SAINT, according to the legend, was a Christian martyr of the 3d century, and a native of Palestine or of Syria. Glorifying in his gigantic strength and stature, he resolved to serve none who owned a superior. His first master was more powerful than any man, but it soon appeared that he was exceedingly afraid of the devil. The devil therefore became the master of the future saint. But even he was found not to be superior to fear; for he trembled before the image of Christ. His servant consequently deserted him, and, meeting a hermit who told him of the Saviour, was baptized, and undertook as a penance to carry Christian pilgrims over a bridgeless stream. At length a little child requested his aid, but the burden proved more than the giant could support. The child was Christ; and thus is explained the name Christopher (Christ-bearer). As a sign, Christopher's staff, being planted, grew into a palm-tree covered with fruit and foliage,—a miracle which effected the conversion of thousands. In consequence, the prefect Dagnus seized him, and after cruelly torturing him commanded him to be shot with poisoned arrows. These, however, instead of harming him, rebounded and wounded his persecutors. One entered the eye of the prefect; and in pity Christopher sacrificed himself to save his enemy. He was decapitated, and his blood healed the wound. The festival of St. Christopher is celebrated by the Roman Catholic church on the 25th July, by the Greek church on the 9th May. St. Christopher was invoked as a defense against pestilence, and in order to frighten away the spirits who watch over hidden treasure.

CHRISTOPOULOUS, ATHANASIAS (1772-1847), a modern Greek poet, was the son of a Greek priest settled in Wallachia. He wrote drinking songs and love ditties which are very popular among the Greeks. He is also the author of a tragedy, of *Parallela* (a comparison of various systems of government), of translations of Homer and Herodotus, and of some philological works on the connection between ancient and modern Greek.

CHROMIUM, one of the metallic chemical elements, so called from the Greek *chroma*, color, in allusion to the fine colors of its compounds; symbol Cr, atomic weight 52.4. It does not occur in the free state or very abundantly in nature.

The alloy termed chromeisen, containing about three parts by weight of chromium to one of iron, is hard enough to serve for cutting glass. An extremely soft steel can be made by employing it instead of spiegeleisen in Siemens's steel process. Chromium compounds are in request for a great diversity of purposes. Free chromic acid and potassium bichromate are used in calico-printing, and in bleaching tallow and palm oil. The bichromate is also employed for the volumetric estimation of ferrous salts, in the printing of photographs, and in galvanic batteries; it has even been used with lead chromate for the adulteration of snuff. It is itself sometimes adulterated with a mixture of sulphate and chloride of sodium, colored with a strong solution of bichromate. Potassium bichromate in contact with the skin produces dangerous ulcers, and internally it acts as a violent poison. Fused lead chromate is of value in organic chemistry as an oxidizer, and the unfused salt is the well-known pigment chrome-yellow. Chrome-red is a basic lead chromate.

CHRONICLES, BOOK OF. The Book of Chronicles begins with Adam and ends abruptly in the middle of Cyrus's decree of restoration. The continuation of the narrative is found in the book of Ezra, which begins by repeating 2 Chron. xxxvi. 22, 23, and filling up the fragment of the decree of Cyrus. A closer examination of those parts of Ezra and Nehemiah which are not extracted word for word from earlier documents or original

memoirs, leads to the conclusion that Chronicles-Ezra-Nehemiah was originally one work, displaying throughout the peculiarities of language and thought of a single editor, who, however, cannot be Ezra himself as tradition would have it. Thus the fragmentary close of 2 Chronicles marks the disruption of a previously-existing continuity,—due, presumably, to the fact that in the gradual compilation of the Canon the necessity for incorporating in the Holy Writings an account of the establishment of the post-exile theocracy was felt, before it was thought desirable to supplement Samuel and Kings by adding a second history of the period before the exile. Hence Chronicles is the last book of the Hebrew Bible, following the book of Ezra-Nehemiah, which properly is nothing else than the sequel of Chronicles.

What seems to be certain and important for a right estimate of the book is that the author lived a considerable time after Ezra, and stood entirely under the influence of the religious institutions of the new theocracy. This standpoint determined the nature of his interest in the early history of his people.

CHRONOLOGY (computation of time) is the science which treats of time. Its object is to arrange and exhibit the various events which have occurred in the history of the world in the order of their succession, and to ascertain the intervals of time between them.

The preservation of any record, however rude, of the lapse of time implies some knowledge of the celestial motions, by which alone time can be accurately measured, and some advancement in the arts of civilized life, which could only be attained by the accumulated experience of many generations. Before the invention of letters the memory of past transactions could not be preserved beyond a few years with any tolerable degree of accuracy. Events which greatly affected the physical condition of the human race, or were of a nature to make a deep impression on the minds of the rude inhabitants of the earth, might be vaguely transmitted through several ages by traditional narrative; but intervals of time, expressed by abstract numbers, and these constantly varying besides, would soon escape the memory. The invention of the art of writing afforded the means of substituting precise and permanent records for vague and evanescent tradition; but in the infancy of the world, mankind had learned neither to estimate accurately the duration of time, nor to refer passing events to any fixed epoch. Writing was practiced many centuries before historians began to assign dates to the events they narrated. The masterpieces of Herodotus and Thucydides, while setting forth, each in the manner suited to the author's aim, events in the order of their succession, are stories without dates.

For these reasons the history of the early ages of the world is involved in almost impenetrable obscurity, and chronology, comparatively speaking, is only of recent origin. After political relations began to be established, the necessity of preserving a register of passing seasons and years would soon be felt, and the practice of recording important transactions must have grown up as a necessary consequence of social life. But of these early records a very small portion only has escaped the ravages of time and barbarism.

The earliest written annals of the Greeks, Etruscans, and Romans are irretrievably lost. The traditions of the Druids perished with them. A Chinese emperor has the credit of burning "the books" extant in his day about (220 B.C.), and of burying alive the scholars who were acquainted with them. And a Spanish adventurer destroyed the picture records which were found in the *pueblo* of Montezuma.

Of the more formal historical writings in which the first ineffectual attempts were made in the direction of systematic chronology we have no knowledge at first-hand. Of Hellenicus, the Greek logographer, who appears to have lived through the greater part of the 5th century B.C., and who drew up a chronological list of the priestesses of Here at Argos; of Ephorus, who lived in the 4th century B.C., and is distinguished as the first Greek who attempted the composition of a universal history; and of Timæus, who in the following century wrote an elaborate history of Sicily, in which he set the example of using the Olympiads as the basis of chronology, the works have perished, and our meagre knowledge of their contents is derived only from fragmentary citations in later writers. The same fate has befallen the works of Berossus and Manetho, Eratosthenes and Appollodorus. Berossus, a priest of Belus living at Babylon in the 3rd century B.C., added to his historical account of Babylonia a chronological list of its kings, which he claimed to have compiled from genuine archives preserved in the temple. Manetho, likewise a priest, living at Sebennytus in Lower Egypt in the 3d century B.C., wrote in Greek a history of Egypt, with an account of its thirty dynasties of sovereigns, which he professed to have drawn from genuine archives in the keeping of the priests. Of these works fragments only, more or less copious and accurate, have been preserved. Eratosthenes, who in the latter half of the 2d century B.C. was keeper of the famous Alexandrian Library, not only made himself a great name by his important work on geography, but by his treatise entitled *Chronographia*, one of the first attempts to establish an exact scheme of general chronology, earned for himself the title of "father of chronology." His method of procedure, however, was usually conjectural; and guess-work, however careful, acute, and plausible, is still guess-work and not testimony. Apollodorus, an Athenian who flourished in the middle of the 2d century B.C., wrote a metrical chronicle of events, ranging from the supposed period of the fall of Troy to his own day. These writers were followed by other investigators and systematizers in the same field, but their works are lost.

The absence or incompleteness of authentic records, however, is not the only source of obscurity and confusion in the chronology of remote ages. There can be no exact computation of time or placing of events without a fixed point or epoch from which the reckoning takes its start. It was long before this was apprehended. When it began to be seen, various epochs were selected by various writers; and at first each small separate community had its own epoch and method of time-reckoning. Thus in one city the reckoning was by succession of kings, in another by archons or annual magistrates, in a third by succession of priests. It seems now surprising that vague counting by generations should so long have prevailed and satisfied the wants of inquiring men, and that so simple, precise, and seemingly obvious a plan as counting by years, the largest natural division of time, did not occur to any investigator before Eratosthenes.

Precision, which was at first unattainable for want of an epoch, was afterwards no less unattainable from the multiplicity, and sometimes the variation, of epochs. But by a natural process the mischief was gradually and partially remedied. The extension of intercourse between the various small groups or societies of men, and, still more, their union in larger groups, made a common epoch necessary, and led to the adoption of such a starting point by each larger group. These leading epochs continued in use for many centuries. The task of the chronologist was thus simplified and

reduced to a study and comparison of dates in a few leading systems.

The most important of these systems in what we call ancient times were the Babylonian, the Greek, and the Roman. The Jews had no general era, properly so called. In the history of Babylonia, the fixed point from which time was reckoned was the era of Nabonassar, 747 B.C. Among the Greeks the reckoning was by Olympiads, the point of departure being the year in which Corœbus was victor in the Olympic Games, 776 B.C. The Roman chronology started from the foundation of the city, the year of which, however, was variously given by different authors. The most generally adopted was that assigned by Varro, 753 B.C. It is noteworthy how nearly these three great epochs approach each other,—all lying near the middle of the 8th century, B.C. But it is to be remembered that the beginning of an era and its adoption and use as such are not the same thing, nor are they necessarily synchronous. Of the three ancient eras above spoken of, the earliest is that of the Olympiads, next that of the foundation of Rome, and the latest the era of Nabonassar. But in order of adoption and actual usage the last is first. It is believed to have been in use from the year of its origin. It is not known when the Romans began to use their era. The Olympiads were not in current use till about the middle of the third century, B.C., when Timæus, as already mentioned, set the example of reckoning by them. Of these and other ancient and modern eras a full account is given in the following pages.

Even after the adoption in Europe of the Christian era, a great variety of methods of dating—national, provincial, and ecclesiastical—grew up and prevailed for a long time in different countries, thus renewing in modern times the difficulties experienced in ancient times from diversities of reckoning. An acquaintance with these various methods is indispensable to the student of the charters, chronicles, and legal instruments of the Middle Ages.

In reckoning years from any fixed epoch in constant succession, the number denoting the years is necessarily always on the increase. But rude nations and illiterate people seldom attach any definite idea to large numbers. Hence it has been a practice, very extensively followed, to employ cycles or periods, consisting of a moderate number of years, and to distinguish and reckon the years by their number in the cycle. The Chinese and other nations of Asia reckon, not only the years, but also the months and days by cycles of sixty. The Saros of the Chaldeans, the Olympiad of the Greeks, and the Roman Indiction are instances of this mode of reckoning time. Several cycles were formerly known in Europe; but most of them were invented for the purpose of adjusting the solar and lunar divisions of time, and were rather employed in the regulation of the calendar than as chronological eras. They are frequently, however, of very great use in fixing dates that have been otherwise imperfectly expressed, and consequently form important elements of chronology.

Chronology has shared with history the fruits of the novel researches and remarkable discoveries in the field of antiquity which have especially distinguished the present century. The *memorabilia* of early peoples and ages were set down not only in written records but in monumental inscriptions. The latter, graven on stone or metal, could resist the touch of time and the hand of the barbarian better than the former; and although at various times terrible havoc has been made among them, immense numbers are in existence to this day. In Assyria, Egypt, Persia, Greece, and Italy, the practice of monumental inscription was very general. These

inscriptions have attracted the attention of learned men from very remote ages. But as contributions to history and chronology, they have within the present century risen into new and surprising importance. By Grotefend's decipherment of the cuneiform characters, the language of the Babylonian and Persian inscriptions, and by Young's decipherment of hieroglyphics, the language of the Egyptian monuments, two discoveries made within a few years of each other, new fields of vast extent and unknown richness have been opened to historical explorers. These fields are now being diligently worked by some of the greatest living scholars; and from granite block and fragile papyrus roll results are already obtained of rare value and of rarer promise. The Assyrian inscribed cylinders, disinterred but thirty years ago, are yielding up the secrets of a long-buried past, enlarging the horizon of history, and even furnishing the means of giving a precise chronology to periods where all was vague. The publication of the Assyrian canon by Sir Henry Rawlinson, in 1862, verified as it was by the subsequent discovery of a record of a solar eclipse, must mark an epoch in chronological science. Egyptian researches and interpretations have been of similar service, and have strongly tended, if not to establish the complete accuracy, at least to indicate the credibility, of Manetho's account of the Egyptian dynasties. The period through which these dynasties apparently reached was so vast, stretching so far beyond the traditionally accepted limits of man's existence on the earth, that modern chronologists, when they grew critical, could for a long time only shake their heads in profound doubt over Manetho and his vistas of shadowy kings. For Egyptian chronology the discovery by Mariette, in 1864, of the *Apis Stelæ* is one of the highest importance. A flood of light has been poured on some obscure pages of early Persian history by the great cuneiform inscription of Behistun, discovered in 1835 by Colonel Rawlinson, who subsequently copied and translated it.

Although the Julian period (the invention of Joseph Scaliger, in 1582) is not, properly speaking, a chronological era, yet, on account of its affording considerable facilities in the comparison of different eras with one another, and in marking without ambiguity the years before Christ, it is very generally employed by chronologists. It consists of 7980 Julian years; and the first year of the Christian era corresponded with the year 4714 of the Julian period.

The Olympic games, so famous in Greek history, were celebrated once every four years, between the new and full moon first following the summer solstice, on the small plain named Olympia in Elis, which was bounded on one side by the River Alpheus, on another by the small tributary stream, the Cladeus, and on the other two sides by mountains. The games lasted five days. Their origin, lost in the dimness of remote antiquity, was invested by priestly legends with a sacred character. They were said to have been instituted by the Idæan Heracles, to commemorate his victory over his four brothers in a foot race. According to a tradition, possibly more authentic, they were reestablished by Iphitus, king of Elis, in concert with the Spartan Lycurgus and Cleosthenes of Pisa. The practice was long afterwards adopted of designating the Olympiad, or period of four years, by the name of the victor in the contests of the stadium, and of inscribing his name in the gymnasium of Olympia. The first who received this honor was Corœbus. The games in which Corœbus was victor, and which form the principal epoch of Greek history, were celebrated about the time of the summer solstice, 776 years before the common era of the Incarnation, in the 3938th year of the Julian period,

and twenty-three years, according to the account of Varro, before the foundation of Rome.

Before the introduction of the Metonic cycle, the Olympic year began sometimes with the full moon which followed, at other times with that which preceded the summer solstice, because the year sometimes contained 384 days instead of 354. But subsequently to its adoption, the year always commenced with the eleventh day of the moon which followed the solstice. In order to avoid troublesome computations, which it would be necessary to recommence for every year, and of which the results differ only by a few days, chronologers generally regard the 1st of July as the commencement of the Olympic year. Some authors, however, among whom are Eusebius, Jerome, and the historian Socrates, place its commencement at the 1st of September; these, however, appear to have confounded the Olympic year with the civil year of the Greeks, or the era of the Seleucidæ.

It is material to observe, that as the Olympic years and periods begin with the 1st of July, the first six months of a year of our era correspond to one Olympic year, and the last six months to another. Thus, when it is said that the first year of the Incarnation corresponds to the first of the 195th Olympiad, we are to understand that it is only with respect to the last six months of that year that the correspondence takes place. The first six months belonged to the fourth year of the 194th Olympiad. In referring dates expressed by Olympiads to our era, or the contrary, we must therefore distinguish two cases:

1. When the event in question happened between the 1st of January and the 1st of the following July, the sum of the Olympic year and of the year before Christ is always equal to 776. The year of the era, therefore, will be found by subtracting the number of the Olympic year from 776. For example, Varro refers the foundation of Rome to the 21st of April of the third year of the sixth Olympiad, and it is required to find the year before our era. Since five Olympic periods have elapsed, the third year of the sixth Olympiad is $5 \times 4 + 3 = 23$; therefore, subtracting 23 from 776, we have 753, which is the year before Christ to which the foundation of Rome is referred by Varro.

2. When the event took place between the summer solstice and the 1st of January following, the sum of the Olympic year and of the year before Christ is equal to 777. The difference, therefore, between 777 and the year in one of the dates will give the year in the other date. Thus, the moon was eclipsed on the 27th of August, a little before midnight, in the year 413 before our era; and it is required to find the corresponding year in the Olympic era. Subtract 413 from 777, the remainder is 364; and 364 divided by four gives 91 without a remainder; consequently the eclipse happened in the fourth year of the ninety-first Olympiad, which is the date to which it is referred by Thucydides.

If the year is after Christ, and the event took place in one of the first six months of the Olympic year, that is to say, between July and January, we must subtract 776 from the number of the Olympic year to find the corresponding year of our era; but if it took place in one of the last six months of the Olympic year, or between January and July, we must deduct 777. The computation by Olympiads seldom occurs in historical records after the middle of the 5th century of our era.

The names of the months were different in the different Grecian states. The Attic months, of which we possess the most certain knowledge, were named as follows: Hecatombæon, Metageitnion, Boedromion, Pyanepsion, Mæmacterion, Poseideon, Gamelion, Anthesterion, Elaphebolion, Munychion, Thargelion, Scirophorion.

After the Olympiads, the era most frequently met with in ancient history is that of the foundation of Rome, which is the chronological epoch adopted by all the Roman historians. There are various opinions respecting the year of the foundation of Rome :

1. Fabius Pictor places this event in the latter half of the first year of the eighth Olympiad, which corresponds with the 3967th of the Julian period, and with the year 747 B.C.

2. Polybius places it in the second year of the seventh Olympiad, corresponding with 3964 of the Julian period, and 750 B.C.

3. M. Porcius Cato places it in the first year of the seventh Olympiad, that is, in 3963 of the Julian period, and 751 B.C.

4. Verrius Flaccus places it in the fourth year of the sixth Olympiad, that is, in the year 3962 of the Julian period, and 752 B.C.

5. Terentius Varro places it in the third year of the sixth Olympiad, that is, in the year 3961 of the Julian period, and 750 B.C.

A knowledge of these different computations is necessary, in order to reconcile the Roman historians with one another, and even any one writer with himself. Livy in general adheres to the epoch of Cato, though he sometimes follows that of Fabius Pictor. Cicero follows the account of Varro, which is also in general adopted by Pliny. Dionysius of Halicarnassus follows Cato. Modern chronologers for the most part adopt the account of Varro, which is supported by a passage in Censorinus, where it is stated that the 991st year of Rome commenced with the festival of the Palilia, in the consulship of Ulpian and Pontianus. Now this consulship corresponded with the 238th year of our era; therefore, deducting 238 from 991, we have 753 to denote the year before Christ. The Palilia commenced on the 21st of April; and all the accounts agree in regarding that day as the epoch of the foundation of Rome.

The Romans employed two sorts of years, the civil year, which was used in the transaction of public and private affairs, and the consular year, according to which the annals of their history have been composed. The civil year commenced with the calends of January, but this did not hold a fixed place in the solar year till the time of Julius Cæsar. The installation of the consuls regulated the commencement of the consular year. The initial day of the consulate was never fixed, at least before the 7th century of Rome, but varied with the different accidents which in times of political commotion so frequently occurred to accelerate or retard the elections. Hence it happens that a consular year, generally speaking, comprehends a part not only of two Julian years, but also of two civil years. The consulate is the date employed by the Latin historians generally, and by many of the Greeks, down to the 6th century of our era.

In the era of Rome the commencement of the year is placed at the 21st of April; an event therefore which happened in the months of January, February, March, or during the first twenty days of April, in the year (for example) 500 of Rome, belongs to the civil year 501. Before the time of the Decemvirs, however, February was the last month of the year. Many authors confound the year of Rome with the civil year, supposing them both to begin on the 1st of January. Others again confound both the year of Rome and the civil year with the Julian year, which in fact became the civil year after the regulation of the calendar by Julius Cæsar. Through a like want of attention, many writers also, particularly among the moderns, have confounded the Julian and Olympic years, by making an entire Julian year correspond to an entire Olympic year, as if both had com-

menced at the same epoch. Much attention to these particulars is required in the comparison of ancient dates.

The Christian or vulgar era, called also the era of Incarnation, is now almost universally employed in Christian countries, and is even used by some Eastern nations. Its epoch or commencement is the 1st of January in the fourth year of the 194th Olympiad, the 753d from the foundation of Rome, and the 4714th of the Julian period. It is usually supposed to begin with the year of the birth of Christ, but there are various opinions with regard to the year in which that event took place. This epoch was introduced in Italy in the 6th century, by Dionysius the Little, a Roman abbot, and began to be used in Gaul in the 8th, though it was not generally followed in that country till a century later. From extant charters it is known to have been in use in England before the close of the 8th century. Before its adoption the usual practice in Latin countries was to distinguish the years by their number in the cycle of Indiction.

In the Christian era the years are simply distinguished by the cardinal numbers; those before Christ being marked B.C. (Before Christ), or A.C. (Ante Christum), and those after Christ A.D. (Anno Domini). This method of reckoning time is more convenient than those which employ cycles or periods of any length whatever; but it still fails to satisfy in the simplest manner possible all the conditions that are necessary for registering the succession of events. For, since the commencement of the era is placed at an intermediate period of history, we are compelled to resort to a double manner of reckoning, backward as well as forward. Some ambiguity is also occasioned by the want of uniformity in the method of numbering the preceding years. Astronomers denote the year which preceded the first of our era by 0, and the year previous to that by 1 B.C.; but chronologers, in conformity with common notions, call the year preceding the era 1 B.C., the previous year 2 B.C., and so on. By reckoning in this manner, there is an interruption in the regular succession of the numbers; and in the years preceding the era, the leap years, instead of falling on the fourth, eighth, twelfth, &c., fall, or ought to fall, on the first, fifth, ninth, &c.

In the chronicles of the Middle Ages much uncertainty frequently arises respecting dates on account of the different epochs assumed for the commencement of the Christian year. Dionysius, the author of the era, adopted the day of the *Annunciation*, or the 25th of March, which preceded the birth of Christ by nine months, as the commencement of the first year of the era. This epoch therefore precedes that of the vulgar era by nine months and seven days. This manner of dating was followed in some of the Italian states, and continued to be used at Pisa even down to the year 1745. It was also adopted in some of the Papal bulls; and there are proofs of its having been employed in France about the middle of the 11th century. Some chroniclers, who adhere to the day of the Annunciation as the commencement of the year, reckon from the 25th of March following our epoch, as the Florentines in the 10th century. Gregory of Tours, and some writers of the 6th and 7th centuries, make the year commence sometimes with the 1st of March, and sometimes with the 1st of January. In France, under the third race of kings, it was usual to begin the year with Easter; and this practice continued at least till the middle of the 16th century, for an edict was issued by Charles IX. in the month of January, 1663, ordaining that the commencement of the year should thenceforth be considered as taking place on the 1st of January. An instance is given, in *L'Art de Vérifier les Dates*, of a date in which the year is reckoned from the 18th of March; but it is

probable that this refers to the astronomical year, and that the 18th of March was taken for the day of the vernal equinox. In Germany, about the 11th century, it was usual to commence the year at Christmas; and this practice also prevailed at Milan, Rome, and other Italian cities, in the 13th, 14th, and 15th centuries.

In England, the practice of placing the beginning of the year at Christmas was introduced in the 7th century, and traces of it are found even in the 13th. Gervase of Canterbury, who lived in the 13th century, mentions that almost all writers of his country agreed in regarding Christmas day as the first of the year, because it forms, as it were, the term at which the sun finishes and recommences his annual course. In the 12th century, however, the custom of beginning the civil year with the day of the Annunciation, or the 25th of March, began to prevail, and continued to be generally followed from that time till the reformation of the calendar in 1752. The historical year has always been reckoned by English authors to begin with the 1st of January. The liturgic year of the Church of England commences with the first Sunday of Advent.

A knowledge of the different epochs which have been chosen for the commencement of the year in different countries is indispensably necessary to the right interpretation of ancient chronicles, charters, and other documents in which the dates often appear contradictory. We may cite an example or two. It is well known that Charles the Great was crowned emperor at Rome on Christmas day in the year 800, and that he died in the year 814, according to our present manner of reckoning. But in the annals of Metz and Moissac, the coronation is stated to have taken place in the year 801, and his death in 813. In the first case the annalist supposes the year to begin with Christmas, and accordingly reckons the 25th of December and all the following days of that month to belong to 801, whereas in the common reckoning they would be referred to the year 800. In the second case the year has been supposed to begin with the 25th of March, or perhaps with Easter; consequently the first three months of the year 814, reckoning from the 1st of January, would be referred to the end of the year 813. The English Revolution is popularly called the Revolution of 1688. Had the year then begun, as it now does, with the 1st of January, it would have been the revolution of 1689, William and Mary being received as king and queen in February in the year 1689; but at that time the year was considered in England as beginning on the 25th of March. Another circumstance to which it is often necessary to pay attention in the comparison of dates, is the alteration of style which took place on the adoption of the Gregorian Calendar.

As the Greek and Roman methods of computing time were connected with certain pagan rites and observances, which the Christians held in abhorrence, the latter began at an early period to imitate the Jews in reckoning their years from the supposed period of the creation of the world. The chronological elements on which both Jews and Christians founded their computations for determining this period were derived from the Old Testament narratives, which have been transmitted to us through three distinct channels. These are the Hebrew text of the Scriptures, the Samaritan text, and the Greek version known as the Septuagint. In respect of chronology, the three accounts are totally irreconcilable with each other; and no conclusive reason can be given for preferring any one of them to another. We have no concurrent testimony with which to compare them; nor is it even known which of them was regarded as the most probable by the Jews themselves, when the books of the Old Testament were revised and transcribed by

Ezra. The ordinary rules of probability cannot be applied to a state of things in which the duration of human life is represented as extending to nearly a thousand years.

Till the 15th century the Jews usually followed the era of the Seleucidæ or of Contracts. Since that time they have generally employed a mundane era and dated from the creation of the world, which, according to their computation, took place 3760 years and about three months before the commencement of our era. No rule can be given for determining with certainty the day on which any given Jewish year begins, without entering into the minutiae of their irregular and complicated calendar.

The Era of Constantinople, which is still used in the Greek Church, and was followed by the Russians till the time of Peter the Great, dates from the creation of the world. The Incarnation falls in the year 5509; and corresponds, as in our era, with the fourth year of the 194th Olympiad. The civil year commences with the 1st of September; the ecclesiastical year sometimes with the 21st of March, sometimes with the 1st of April. It is not certain whether the year was considered at Constantinople as beginning with September before the separation of the Eastern and Western empires.

The era of Nabonassar is famous in astronomy, having been generally followed by Hipparchus and Ptolemy. It is believed to have been in use from the very time of its origin; for the observations of eclipses which were collected in Chaldea by Callisthenes, the general of Alexander, and transmitted by him to Aristotle, were for the greater part referred to the commencement of the reign of Nabonassar, founder of the kingdom of the Babylonians. It is the basis of the famous Canon of Kings, also called Mathematical Canon, preserved to us in the works of Ptolemy, which, before the recent astonishing discoveries at Nineveh, was the sole authentic monument of Assyrian and Babylonian history known to us. The epoch from which it is reckoned is precisely determined by numerous celestial phenomena recorded by Ptolemy, and corresponds to Wednesday at mid-day, the 26th of February of the year 747 before Christ. The year was in all respects the same as the ancient Egyptian year. On account of the difference in the length of the Julian and Babylonian years, the conversion of dates according to the era of Nabonassar into years before Christ is attended with considerable trouble. The surest way is to follow a comparative table. Frequently the year cannot be fixed with certainty, unless we know also the month and the day.

The Greeks of Alexandria formerly employed the era of Nabonassar, with a year of 365 days; but soon after the reformation of the calendar by Julius Cæsar, they adopted, like other Roman provincials, the Julian intercalation. At this time the first of Thoth had receded to the 29th of August. In the year 136 of our era, the first of Thoth in the ancient Egyptian year corresponded with the 20th of July, between which and the 29th of August there are forty days. The adoption of the Julian year must therefore have taken place about 160 years before the year 136 of our era (the difference between the Egyptian and Julian years being one day in four years), that is to say, about the year 25 B.C. In fact, the first of Thoth corresponded with the 29th of August in the Julian calendar, in the years 25, 24, 23, and 22 B.C.

The era of the Seleucidæ, or Macedonian era, dates from the time of the occupation of Babylon by Seleucus Nicator, 311 years before Christ, in the year of Rome 442, and twelve years after the death of Alexander the Great. It was adopted not only in the monarchy of the Seleucidæ but in general in all the Greek countries

bordering on the Levant, was followed by the Jews till the 15th century, and is said to be used by some Arabians even at the present day. By the Jews it was called the *Era of Contracts*, because the Syrian governors compelled them to make use of it in civil contracts; the writers of the books of Maccabees call it the *Era of Kings*. But notwithstanding its general prevalence in the East for many centuries, authors using it differ much with regard to their manner of expressing dates, in consequence of the different epochs adopted for the commencement of the year. Among the Syrian Greeks the year began with the month Elul, which corresponds to our September. The Nestorians and Jacobites at the present day suppose it to begin with the following month, or October. The author of the first book of Maccabees makes the era commence with the month Nisan, or April; and the author of the second book with the first Tishrin, or October. Albategni, a celebrated Arabian astronomer, dates from the 1st of October. Some of the Arabian writers, as Alfergani, date from the 1st of September. At Tyre the year was counted from the 19th of our October, at Gaza from the 28th of the same month, and at Damascus from the vernal equinox. These discrepancies render it extremely difficult to determine the exact correspondence of Macedonian dates with those of other eras; and the difficulty is rendered still greater by the want of uniformity in respect of the length of the year. Some authors who follow the Macedonian era, use the Egyptian or vague year of 365 days; Albategni adopts the Julian year of $365\frac{1}{4}$ days.

According to the computation most generally followed, the year 312 of the era of the Seleucidæ began on the 1st of September in the Julian year preceding the first of our era. Hence, to reduce a Macedonian date to the common era, subtract 311 years and four months.

Some of the Greek historians have assumed as a chronological epoch the death of Alexander the Great, which took place in the year 325 B.C. The form of the year is the same as in the preceding era. This era has not been much followed; but it requires to be noticed in order that it may not be confounded with the era of the Seleucidæ.

The era of Tyre is reckoned from the 19th of October, or the beginning of the Macedonian month Hyperberetæus, in the year 126 B.C. In order, therefore, to reduce it to the common era, subtract 125; and when the date is B.C., subtract it from 126. Dates expressed according to this era occur only on a few medals, and in the acts of certain councils.

The *Cæsarean Era of Antioch* was established to commemorate the victory obtained by Julius Cæsar on the plains of Pharsalia, on the 9th of August in the year 48 B.C., and the 706th of Rome. The Syrians computed it from their month Tishrin I.; but the Greeks threw it back to the month Gorpæus of the preceding year. Hence there is a difference of eleven months between the epochs assumed by the Syrians and the Greeks. According to the computation of the Greeks, the 49th year of the Cæsarean era began in the autumn of the year preceding the commencement of the Christian era; and, according to the Syrians, the 49th year began in the autumn of the first year of the Incarnation. It is followed by Evagrius in his *Ecclesiastical History*.

The Julian era commences with the 1st of January, forty-five years B.C. It was designed to commemorate the reformation of the Roman calendar by Julius Cæsar.

The conquest of Spain by Augustus, which was completed in the thirty-ninth year B.C., gave rise to what has been termed the *Era of Spain*, or *of the Cæsars*, which began with the first day of the following year,

and was long used in Spain and Portugal, and generally in all the Roman provinces subdued by the Visigoths, both in Africa and in the South of France. Several of the councils of Carthage, and also that of Arles, are dated according to this era. After the 9th century it became usual to join with it in public acts the year of the Incarnation. It was followed in Catalonia till the year 1180, in the kingdom of Aragon till 1350, in Valencia till 1358, and in Castille till 1382. In Portugal it is said to have been in use so late as the year 1415, or 1422, though it would seem that after the establishment of the Portuguese monarchy, no other era was used in the public acts of that country than that of the Incarnation. As the era of Spain commenced with the 1st of January, and the months and days of the year are those of the Julian calendar, any date is reduced to the common era by subtracting thirty-eight from the number of the year.

The *Era of Actium* was established to commemorate the battle of Actium, which was fought on the 3d of September, in the year 31 B.C., and in the 15th of the Julian era. By the Romans the era of Actium was considered as commencing on the 1st of January of the 16th of the Julian era, which is the 30th B.C. The Egyptians, who used this era till the time of Diocletian, dated its commencement from the beginning of their month Thoth, or the 29th of August; and the Eastern Greeks from the 2d of September. By the latter it was also called the era of Antioch, and it continued to be used till the 9th century. It must not be confounded with the Cæsarian era of Antioch, which began seventeen years earlier. Many of the medals struck by the city of Antioch in honor of Augustus are dated according to this era.

Besides the era of Actium, there was also an Augustan era, which commenced four years later, or 27 B.C., the year in which Augustus prevailed on the senate and people of Rome to decree him the title of Augustus, and to confirm him in the supreme power of the empire.

The cycle of Indiction was very generally followed in the Roman empire for some centuries before the adoption of the Christian era. Three Indictions may be distinguished; but they differ only in regard to the commencement of the year.

1. The Constantinopolitan Indiction, like the Greek year, commenced with the month of September. This was followed in the Eastern empire, and in some instances also in France.

2. The Imperial or Constantinian Indiction is so called because its establishment is attributed to Constantine. This was also called the Cæsarian Indiction. It commences on the 24th of September. It is not infrequently met with in the ancient chronicles of France and England.

3. The Roman or Pontifical Indiction began on the 25th of December or 1st of January, according as the Christian year was held to commence on the one or other of these days. It is often employed in papal bulls, especially after the time of Gregory VII, and traces of its use are found in early French authors.

The epoch of the Armenian era is that of the Council of Tiben, in which the Armenians consummated their schism from the Greek Church by condemning the acts of the Council of Chalcedon; and it corresponds to Tuesday, the 9th of July of the year 552 of the Incarnation. In their civil affairs the Armenians follow the ancient vague year of the Egyptians; but their ecclesiastical year, which begins on the 11th of August, is regulated in the same manner as the Julian year, every fourth year consisting of 366 days, so that Easter and the other festivals are retained at the same place in the seasons as well as in the civil year. The Armenians also

make use of the mundane era of Constantinople, and sometimes conjoin both methods of computation in the same documents. In their correspondence and transactions with Europeans, they generally follow the era of the Incarnation, and adopt the Julian year.

To reduce the civil dates of the Armenians to the Christian era, proceed as follows. Since the epoch is the 9th of July, there were 176 days from the beginning of the Armenian era to the end of the year 552 of our era; and since 552 was a leap year, the year 553 began a Julian intercalary period. Multiply, therefore, the number of Armenian years elapsed by 365; add the number of days from the commencement of the current year to the given date; subtract 176 from the sum, and the remainder will be the number of days from the 1st of January, 553, to the given date. This number of days being reduced to Julian years, add the result to 552, and the sum gives the day in the Julian year, or old style.

In the ecclesiastical reckoning the year begins on the 11th of August. To reduce a date expressed in this reckoning to the Julian date, add 551 years, and the days elapsed from the 1st of January to the 10th of August, both inclusive, of the year 552, — that is to say (since 552 is a leap year), 223 days. In leap years, one day must be subtracted if the date falls between the 1st of March and 10th of August. To complete the year, five complementary days are added in common years, and six in leap years.

The era in use among the Turks, Arabs, and other Mahometan nations is that of the *Hegira* or *Hejra*, the flight of the prophet from Mecca to Medina, 622 A.D. Its commencement, however, does not, as is sometimes stated, coincide with the very day of the flight, but precedes it by sixty-eight days. The prophet, after leaving Mecca, to escape the pursuit of his enemies, the Koreishites, hid himself with his friend Abubekr in a cave near Mecca, and there lay for three days. The departure from the cave and setting out on the way to Medina is assigned to the ninth day of the third month, Rabia I. — corresponding to the 22d of September of the year 622 A.D. The era begins from the first day of the month of Moharram preceding the flight, or first day of that Arabian year, which coincides with Friday, July 16, 622 A.D. It is necessary to remember that by astronomers and by some historians the era is assigned to the preceding day, July 15. It is stated by D'Herbelot that the era of the Hegira was instituted by Omar, the second caliph, in imitation of the Christian era of the martyrs.

From the time of the Emperor Yaou, upwards of 2000 years B.C., the Chinese had two different years, — a civil year, which was regulated by the moon, and an astronomical year, which was solar. The civil year consisted in general of twelve months or lunations, but occasionally a thirteenth was added, in order to preserve its correspondence with the solar year. Even at that early period the solar or astronomical year consisted of $365\frac{1}{4}$ days, like our Julian year; and it was arranged in the same manner, a day being intercalated every fourth year.

According to the missionary Gaubil, the Chinese divided the day into 100 *ke*, each *ke* into 100 minutes, and each minute into 100 seconds. This practice continued to prevail till the 17th century, when, at the instance of the Jesuit Schall, president of the tribunal of mathematics, they adopted the European method of dividing the day into twenty-four hours, each hour into sixty minutes, and each minute into sixty seconds. The civil day commences at midnight and ends at the midnight following.

Since the accession of the emperors of the Han dynasty, 206 B.C., the civil year of the Chinese has begun with the first day of that moon, in the course of which the sun enters into the sign of the zodiac which corre-

sponds with our sign Pisces. From the same period also, they have employed, in the adjustment of their solar and lunar years, a period of nineteen years, twelve of which are common, containing twelve lunations each, and the remaining seven intercalary, containing thirteen lunations. It is not, however, precisely known how they distributed their months of thirty and twenty-nine days, or, as they termed them, great and small moons. This, with other matters appertaining to the calendar, was probably left to be regulated from time to time by the mathematical tribunal.

The Chinese divide the time of a complete revolution of the sun with regard to the solstitial points into twelve equal portions, each corresponding to thirty days, ten hours, thirty minutes. Each of these periods, which is denominated a *tsëe*, is subdivided into two equal portions called *chung-ki* and *tsie-ki*, the *chung-ki* denoting the first half of the *tsëe*, and the *tsie-ki* the latter half. Though the *tsëe* are thus strictly portions of solar time, yet, what is remarkable, though not peculiar to China, they give their name to the lunar months, each month or lunation having the name of the *chung-ki* or sign at which the sun arrives during that month. As the *tsëe* is longer than a synodic revolution of the moon, the sun cannot arrive twice at a *chung-ki* during the same lunation; and as there are only twelve *tsëe*, the year can contain only twelve months having different names. It must happen sometimes that in the course of a lunation the sun enters into no new sign; in this case the month is intercalary, and is called by the same name as the preceding month.

For chronological purposes, the Chinese, in common with some other nations of the east of Asia, employ cycles of sixty, by means of which they reckon their days, moons, and years. The days are distributed in the calendar into cycles of sixty, in the same manner as ours are distributed into weeks, or cycles of seven. Each day of the cycle has a particular name; and as it is a usual practice, in mentioning dates, to give the name of the day along with that of the moon and the year, this arrangement affords great facilities in verifying the epochs of Chinese chronology. The order of the days in the cycle is never interrupted by any intercalation that may be necessary for adjusting the months or years. The moons of the civil year are also distinguished by their place in the cycle of sixty; and as the intercalary moons are not reckoned, for the reason before stated, namely, that during one of these lunations the sun enters into no new sign, there are only twelve regular moons in a year, so that the cycle is renewed every five years.

The method of dividing and reckoning time followed by the various nations of India resembles in its general features that of the Chinese, but is rendered still more complex by the intermixture of Mahometan with Hindu customs. Like the Chinese, the Hindus have a solar year, which is generally followed in the transaction of public business, especially since the introduction of European power; and they have also a lunar year, which regulates their religious festivals, and which they follow in their domestic arrangements. Their solar year, or rather sidereal year, is measured by the time in which the sun returns to the same star, and is consequently longer than our astronomical year, by the whole quantity of the precession of the equinoxes. It is reckoned by the Hindus at 365 days, 6 hours, 12 minutes, 30 seconds, and consequently exceeds a Gregorian year by one day in sixty years. The Indian zodiac is divided into twelve solar and twenty-eight lunar signs; and the year begins with the sun's arrival at the first degree of the first sign. The month is the time the sun takes to pass through one sign; and as

each sign contains the same number of degrees, the months vary somewhat in length, according as the sun is nearer the apogee or the perigee. The longest month may contain 31 days, 14 hours, 39 minutes, and the shortest only 29 days, 8 hours, 21 minutes. The civil months, however, depend solely on the moon; though, with the same perversion of ingenuity which we have already remarked with regard to the Chinese, and of which it would be difficult to find an example except in the east of Asia, they derive their names from the solar signs of the zodiac. The first civil month commences with the day after the full moon of that lunation in the course of which the sun enters the first Hindu sign, and so on with the others. When the sun enters into no new sign during the course of a lunation, the month is intercalary, and is called by the name of that which precedes or follows it, which some prefix to distinguish it from the regular month. In some provinces of India, as in Bengal, the civil month commences with the day after the new moon; but in the upper or northern provinces, it begins, as we have stated, with the day after the full moon. From the manner in which they are reckoned, it is evident that the Hindu months, both solar and lunar, neither consist of an entire number of days, nor are regulated by any cycle, but depend solely on the motion of the sun and moon. The time of their commencement is different on every different meridian; and a Hindu has no means of knowing beforehand on what day any month begins, excepting by consulting his almanac. The civil day in all parts of India begins at sunrise.

The Hindu eras have been the subject of much controversy. According to the dreams of Indian mythology, the duration of the world is limited to four yugs or ages, three of which have already passed, and the fourth, which is the kali-yug, is the last and most deteriorated. It is this only which has any reference to authentic chronology. It forms the principal era of India, and comprehends several others in common use, as the era of Vicramaditya, the era of Salivahana, the Bengalee era, and the cycle of sixty years.

The Kali-yug commenced in the year 3101 B.C. The year is sidereal, and begins when the sun enters the first sign of the Hindu zodiac, which at present happens about the 11th of April. Owing to the precession of the equinoxes the beginning of the year advances in the seasons at the rate of about one day in sixty years.

The Era of Vicramaditya is reckoned from the year 57 B.C., which corresponds to 3044 of the Kali-yug. This era, the years of which are called Samvat, prevails chiefly in the higher or northern provinces of India, and in Guzerat. Its name is derived from that of a sovereign of Malwa, who, by defeating Saka, king of Delhi, acquired possession of the principal throne of India. Whether the year from which it is reckoned was that of the accession or death of this prince is uncertain. The years are reckoned in the same manner as those of the Kali-yug; and it may be remarked of the Indian eras in general that, though some of them profess to be counted from the deaths of their kings, or other historical events, they all commence at the time the sun reaches the same point in his annual course through the zodiac.

The Era of Salivahana is the year 78 A.D., which corresponds to 3179 of the Kali-yug, and 135 of the Vicramaditya. The name is derived from Salivahan, who is said to have reigned many years over the kingdom of Narsinga, and to have been a liberal encourager of the arts and sciences. It is generally used in records or writings of importance, but is most prevalent in the southern provinces of Hindustan. The years are called Saka.

The Fuslee Era, from the near coincidence of its dates

with those of the Hegira, seems to have been imposed on the natives of India by their Mahometan conquerors. It is principally used in revenue transactions, and is pretty generally known over India. There are several eras of this name; but the most common is that which is reckoned from the year 590 A.D. At Madras the commencement of the Fuslee year is fixed on the 12th of July. In Bengal it begins in September, or with the full moon preceding the autumnal equinox.

The Bengalee Era is also supposed to be derived from the Hegira; but the year is measured by solar time, and therefore differs entirely from the Mahometan year, which is purely lunar. At the present time the Bengalee epoch is about nine years later than the Hegira,—the year 1245 of Hegira having commenced in July, 1829, and the Bengalee year in 1236 in April, 1829. The sidereal year exceeds the lunar year by 10 days 21½ hours nearly; consequently, by reckoning backwards, it will be found that the dates of the Bengalee era and of the Hegira coincided about the middle of the sixteenth century. History is silent on the subject; but it seems probable, that though the epoch of the Hegira was partially adopted in India, the Hindus pertinaciously resisted all attempts to disturb their ancient methods of reckoning the subdivisions of the year.

Besides the Indian eras here enumerated, there are some others which are less generally known, or which are followed only in particular provinces. The cycle of sixty years is also sometimes used, particularly in connection with the era of Vicramaditya. According to the Bengal account, the first cycle began 3185 years B.C.; and the year 1876 of our era is consequently the twenty-first of the eighty-fifth cycle. In the Telinga account the first cycle began 3114 B.C.; and the year 1876 is the tenth of the eighty-fourth cycle.

CHRONOMETER, a watch of special construction to measure time with great accuracy, chiefly used in determining the longitude at sea. See CLOCKS and WATCHES.

CHRUUDIM, a town in Bohemia, Austria, is situated on the Chrudimka, a tributary of the Elbe, about 63 miles E.S.E. of Prague. Population, 9400.

CHRYSIPPUS (c. 280–206 B.C.), one of the greatest of the Stoics, was born probably in 280 B.C., at Soli, in Cilicia. Being robbed of his property, he visited Athens, and attended the lectures, probably of Zeno, and certainly of Cleanthes. The latter he succeeded as recognized chief of the school. He is also said to have been instructed in the doctrines of the Middle Academy by Arcesilaus and Lacydes. Chrysippus was the author of a prodigious number of works, which, though extremely prolix and disfigured by great obscurity and carelessness of style and language, were distinguished by extensive learning and considerable acuteness. But nothing has come down to us except small fragments, and from these it is difficult to discover what doctrines are originally due to Chrysippus. We know, however, that he made considerable emendations on the theory of Zeno and Cleanthes. With regard to the relation of moral to physical science, he reversed their conclusion, adopting the view, which from that time became characteristic of Stoicism, that, as the sole aim of philosophy is to discover man's duty, ethics is the only science that is of real importance in itself, while physics is to be regarded merely as an aid to its study. He improved on the crude theory of perception which had been held by his predecessors, who compared the action of the object on the mind to that of the seal on the wax, arguing that this would do away with the possibility of the simultaneous perception of more than one object, and denying that the mental modification resembles the object. He also finally determined the Stoical theory

of the criterion of truth, which, according to him, is irresistible conviction. Much attention was paid by Chrysippus to formal logic. He held that the hypothetical syllogism is the original type of syllogistic inference, and he devoted the most elaborate study to its various forms. He drew up a scheme of the categories,—making the highest Substance; the next, Form, or essential attribute; the third, variety, or that non-essential attribute which is at the same time independent of all but the object itself; the fourth, Variety of Relation, or that non-essential attribute which depends on the relation of the object to some other object. Chrysippus also gave some attention to linguistic, and especially to grammatical investigations.

The explanation of the universe adopted by Chrysippus is that of the rest of his school. The real is the corporeal; man and the world are all that exists. In each there is that which is inert, and also the informing soul or vivifying fire. The soul of the universe is God, or Destiny. Each human soul is part of the universal soul, in which, according to the view originated by Chrysippus, the souls of all, except the wise, are again swallowed up at death. The universe is perfect. So-called physical evil is none. Moral evil is the necessary complement of good, and is turned by Providence into good. All is the result of perfect law. Yet Chrysippus employed all his subtilty to establish the freedom of the will. Another inconsistency was his reliance on divination, which he strove to explain on a theory of natural causation. The stories of the gods Chrysippus regarded as symbolical myths; and of many of them he attempted ingenious explanations.

In morals Chrysippus somewhat modified the extreme theory of the earlier Stoics. He admitted between the good and the bad a third class of things—the indifferent, and even avowed that it is foolish not to desire health, and riches, and honor. In practice a man of unsullied purity, he felt bound to conclude, from the theory that the lower animals live according to nature, that incest and many other crimes, and acts so repulsive as the devouring of the bodies of the dead, are natural, and therefore not to be blamed.

CHRYSOLOGAS, MANUEL, a learned Greek who was instrumental in spreading Greek literature in the West, was born at Constantinople, about 1355, of a distinguished family, which had removed with Constantine to Byzantium. While still very young, he was sent by the emperor John Palæologus to implore the aid of the Christian princes against the Turks. After several years he returned to Constantinople; but at the invitation of the magistrates of Florence, about the year 1395, he became professor of the Greek language in that city, where he taught three years. Having visited Milan and Pavia, and resided for several years at Venice, he went to Rome upon the invitation of Aretino, who had been his disciple, and was then secretary to Gregory XII. In 1408 he was sent to Paris on an important mission from Manuel Palæologus, the Greek emperor. In 1413 he was appointed by Pope Martin V. on an embassy to the Emperor Sigismund, of which the object was to fix a place for the assembling of a general council. It was decided that the meeting should take place at Constance; and Chrysologas was on his way thither, having been chosen to represent the Greek church, when he died suddenly on the 15th of April, 1415. Only two of his works have been printed, one of which, his *Erotemata*, was for some time the only grammar in use in the West.

CHRYSOSTOM, ST. JOHN, the most famous of the Greek fathers, was born of a noble family at Antioch, the capital of Syria, most probably about 347. At the school of Libanius, the sophist, he gave early indications

of his mental powers, and would have been the successor of his heathen master, had he not been, to use the expression of his teacher, stolen away to a life of piety (like Augustine, Gregory of Nazianzus, and Theodoret), by the influence of his pious mother Anthusa. Immediately after his baptism by Meletius, the bishop of Antioch, he gave up all his forensic prospects, and buried himself in an adjacent desert, where for six years he spent a life of ascetic self-denial and study. His infirmities, however, compelled him to return to the world; and the authority of Meletius gained his services to the church. On his arrival he was ordained deacon in his thirty-fifth year (381), and afterwards presbyter at Antioch. On the death of Nectarius he was appointed archbishop of Constantinople by Eutropius, the favorite minister of the Emperor Arcadius. He had, ten years before this, only escaped promotion to the episcopate by a very questionable stratagem,—which, however, he defends in his instructive and elegant treatise *De Sacerdotio*. As a presbyter, he won high reputation by his preaching at Antioch, more especially by his homilies on *The Statues*, a course of sermons delivered when the citizens were justly alarmed at the prospect of severe measures being taken against them by the Emperor Theodosius, whose statues had been demolished in a riot.

On the archiepiscopal throne Chrysostom still persevered in the practice of monastic simplicity. The ample revenues which his predecessors had consumed in pomp and luxury he diligently applied to the establishment of hospitals; and the multitudes who were supported by his charity preferred the eloquent discourses of their benefactor to the amusements of the theatre or of the circus. His homilies, which are still preserved, furnish ample apology for the partiality of the people, exhibiting the free command of an elegant and copious language, an inexhaustible fund of metaphors and similitudes, giving variety and grace to the most familiar topics, with an almost dramatic exposure of the folly and turpitude of vice. His zeal as a bishop and eloquence as a preacher, however, gained him enemies both in the church and at the court. The ecclesiastics who were parted at his command from the lay-sisters (whom they kept ostensibly as servants), the thirteen bishops whom he deposed for simony and licentiousness at a single visitation, the idle monks who thronged the avenues to the court and found themselves the public object of his scorn—all conspired against the powerful author of their wrongs.

Their resentment was inflamed by a powerful party, embracing the magistrates, the ministers, the favorite eunuchs, the ladies of the court, and Eudoxia the empress herself, against whom the preacher thundered daily from the pulpit of St. Sophia. A favorable pretext for gratifying their revenge was discovered in the shelter which Chrysostom had given to four Nitrian monks, known as the tall brothers, who, on being excommunicated by their bishop, had fled to Constantinople; and a ready tool was found in Theophilus, bishop of the rival city of Alexandria, who had driven them from their diocese, and had long circulated in the East the charge of Origenism against Chrysostom. By his instrumentality a synod was called to try or rather to condemn the archbishop; but fearing the violence of the mob in the metropolis, who idolized him for the fearlessness with which he exposed the vices of their superiors, it held its sessions in the suburbs of Chalcedon, named the Oak, where Rufinus had erected a stately church and monastery. A bishop and a deacon were sent to accuse the archbishop, and presented to him a list of charges, in which pride, inhospitality, and Origenism were brought forward to procure the votes of those who hated him for his austerity, or were prejudiced against him as a

suspected heretic. Four successive summonses were signified to Chrysostom, but he indignantly refused to appear until four of his notorious enemies were removed from the council. Without entering into any examination of the charges brought before them, the synod condemned him on the ground of contumacy; and, hinting that his audacity merited the punishment of treason, called on the emperor to ratify and enforce their decision. He was immediately arrested and hurried to Nicæa in Bithynia.

As soon as the news of his banishment spread through the city, the astonishment of the people was quickly exchanged for a spirit of irresistible fury. In crowds they besieged the palace, and had already begun to take vengeance on the foreign monks and sailors who had come from Chalcedon to the metropolis, when, at the entreaty of Eudoxia, the emperor consented to his recall. His return was graced with all the pomp of a triumphal entry, but in two months after he was again in exile. His fiery zeal could not blind him to the vices of the court, and heedless of personal danger, he thundered against the profane honors that were addressed almost within the precincts of St. Sophia to the statues of the empress. The haughty spirit of Eudoxia was inflamed by the report of a discourse commencing with the words, — "Herodias is again furious; Herodias again dances; she once more demands the head of John," and though the report was false, it sealed the doom of the archbishop. A new council was summoned, more numerous and more subservient to the wishes of Theophilus; and troops of barbarians were quartered in the city to overawe the people. Without examining it, the council confirmed the former sentence, and condemned him afresh for having resumed his functions without their permission. He was hurried away to the desolate town of Cucusus, among the ridges of Mount Taurus, with a secret hope, perhaps, that he might be a victim to the Isaurians on the march, or to the more implacable fury of the monks. He arrived at his destination in safety, and the sympathies of the people, which had roused them to fire the cathedral and senate-house on the day of his exile, followed him to his obscure retreat. His influence, however, became more powerfully felt in the metropolis than before. In his solitude he had ample leisure for forming schemes of missionary enterprise, and by his correspondence with the different churches, he at once baffled his enemies, and gave greater energy to his friends. This roused the emperor to visit him with a severer punishment. An order was despatched for his instant removal to the extreme desert of Pityus, and his guards so faithfully obeyed their cruel instructions that, before he reached the sea coast of the Euxine, he expired at Comana, in Pontus, in the sixtieth year of his age. His exile gave rise to a schism in the church, and the Johannists (as they were called) did not return to communion with the archbishop of Constantinople till the relics of the saint were, thirty years after, brought back to the Eastern metropolis with great pomp, and the emperor publicly implored forgiveness from Heaven for the guilt of his ancestors. The festival of St. Chrysostom is kept in the Greek Church, November 13, and in the Latin Church, January 27.

CHUB. See ANGLING.

CHUBB, THOMAS (1679-1746), a well-known deistical writer, was the son of a maltster, Henry Chubb, and was born in the village of East-Harnham, near Salisbury, on the 29th September, 1679. In 1694 he was apprenticed to a glove-maker in Salisbury; but as the work was afterwards found to be unsuitable for him on account of the weakness of his sight, he entered the employment of a tallow chandler, and his income for many years was derived partly from this source and partly from glove-making. Through energy and per-

severance he succeeded in gaining a fair knowledge of mathematics, geography, and some other subjects. Theology, however, was what chiefly commanded the attention of Chubb and his companions, among whom he seems to have been the moving spirit. His intellectual activity, and the eagerness he always displayed to gain clear and distinct views of any question that occupied him, marked him out from the first, and his early habit of committing his thoughts to writing gave him a clear and fluent style which afterwards found much favor with the public. He made his first appearance as an author in the Arian controversy, on the side of Whiston. A dispute having arisen among his friends about Whiston's argument in favor of the supremacy of the one God and Father, Chubb was led to write an essay which bore the title, *The Supremacy of the Father Asserted*. This, passed round his friends in manuscript, created so favorable an impression that the author ultimately submitted it to the judgment of Whiston, who pronounced it well worthy of publication. After a few emendations by Whiston, it was printed in 1715. A number of tracts on various subjects followed, which were published in a collected form in 1730. Chubb was now regarded as a literary phenomenon. Among other persons of eminence, he attracted the attention of Sir Joseph Jekyll, Master of the Rolls, in whose house he lived for several years. The nature of his position there is not precisely known, but there are stories told of his having waited at table as a servant out of livery, and of the amusement caused by his short stout figure standing as steward at his patron's sideboard. His love of independence and retirement drew him back to Salisbury, where by the kindness of friends he was enabled to devote the rest of his days to his favorite studies. He died on the 8th February, 1746. His moral character was excellent, and he is said to have continued a regular attendant on divine worship in the parish church.

CHUNAR, or CHUNARGHUR, a town and ancient fortress of India, in the district of Mirzapur, in the North-West Provinces, situated on the south bank of the Ganges. The fort occupies a conspicuous site on the summit of an abrupt rock which commands the river. It was at one time a place of great strength, and still contains a magazine, and is fortified with batteries. Population, 11,000.

CHUND, or CHAND, or CHANDRA-BARDAI, a Hindu writer belonging to the 12th century, was court-poet to the last of the Hindu sovereigns of Delhi.

CHUPRAH, a town of India, in the province of Behar, Bengal, situated on the north bank of the Ganges. 35 miles north-west of Patna. Population, about 30,000.

CHUQUISACA, the capital of Bolivia, also known as La Plata, Charcas, and Sucre. See SUCRE.

CHUR, the capital of the Swiss canton of Grisons, otherwise known by the French form of the name, Coire. See COIRE.

CHURCH. All who call themselves Christians agree in admitting that in the New Testament (and also, though in a more shadowy and less distinct manner, in the Old Testament) there is to be found frequent mention of a corporate body known as the church,—sometimes spoken of more fully as the Church of God, or the Church of Christ. It is referred to by its divine Founder as about to be built upon a rock (Matthew xvi. 18). In the book of Acts it has become a living reality, including apostles, elders, and laity,—holding a council, and making decisions upon most points of doctrine and of practice (Acts xvi. 4-22). In the epistles it is spoken of in terms of great magnificence, akin to the glowing language of prophecy. Christ, in His glorified humanity, is recognized as its head; it is in turn His body, His fulness, and His spouse.

The exact ideas involved in the word church—the questions concerning its powers, its nature and essence, and modes of government and continuance, its relation to Holy Scripture, and its relation to the state—have all been fruitful matters of controversy. These questions have emerged in a marked manner during the controversy with the Gnostics, the controversy with the Novatians and the Donatists, and those arising out of the Reformation. Hence, among the writings of the fathers, bearing upon the nature of the church, may be specially named those of St. Irenæus in opposition to the Gnostics, of St. Cyprian against the Novatians, and of St. Augustine against the Donatists. The relations of the church to the state became subjects of discussion directly Constantine had made Christianity the religion of the empire. These relations are illustrated by the history of Arianism, Donatism, and Priscillianism, by the career of St. Chrysostom, and by the fierce conflicts of the Middle Ages between Guelfs and Ghibellines—the former siding with the Pope, the latter with the emperors. The contest between Philip the Fair and Pope Boniface, and that of Philip Augustus of France and John of England against Pope Innocent III. turned upon the same great controversy, again and again renewed during the Middle Ages. Some of the most striking mediæval illustrations of the conflict are to be found in the life of Occam, and in the *Divina Commedia* of Dante. The points in dispute have been keenly discussed by modern historians;—those of the 18th century, as Hume, Henry, Mably, being strongly on the side of the state; those of the 19th, as Guizot, Voigt, Michelet, Palgrave, Arnold, Bridges, Mill, and even Macaulay, and, to some extent, Milman, more or less emphatically advocating the cause of the mediæval church during at least a portion of the struggle.

The Reformation in great measure turned upon both sets of questions,—the relation of the church to the Scriptures and its relation to the state. Consequently, they occupy no small portion both of the controversial literature and of the political history of the 16th and 17th centuries. On the religious side they are illustrated by the lives and writings of Martin Luther, Calvin, Melancthon, and the Continental Reformers generally, as well by those of Knox and of Cranmer in Britain, and of their Roman Catholic opponents, such as Ignatius Loyola, and in a later age by Cardinal Bellarmine and by Hooker, by Andrewes and others; and on the political side by such events as the 'Thirty Years' War, the Spanish Armada, the Revolution of 1688. The last two centuries have not witnessed any distinctively religious war. But these questions underlie the numerous "concordats" drawn up between the Church of Rome and various states in Europe and America, the entire history of Gallicanism and Jansenism, the Tractarian controversy commencing in England in 1833 A.D., and the contemporary discussion in Scotland, which ended in the Disruption of 1843 and the formation of the powerful and energetic body of Presbyterians, known as the Free Church. The disestablishment of the Anglican Church in Ireland raised cognate questions, and it is evident that disestablishment, already a fact in the United States, in France, in Ireland, and in some of the British colonies, may at any moment become a question of no slight political importance. Among more modern writers who have treated these questions may be named Bishop Warburton, De Maistre, the Rev. Sir W. Palmer, Rothe, Klee, the Abbé Mignet, Mr. Gladstone, Dr. Arnold, and many more, especially the commentators on creeds and confessions, as Möhler, Bishop Burnet, Bishop Harold Browne.

It remains to mention a few of the more prominent

views and definitions prevalent among leading bodies of Christians.

1. As regards the church triumphant there would probably be little or no controversy. The great bulk of Christians would acknowledge it as "the whole body of the glorified, consisting of the holy angels and of the spirits of the just made perfect who have been redeemed by the merits (whether foreseen or actually wrought) of the divine Head of the church, Jesus Christ, the Incarnate Son of God."

2. But concerning the church on earth, definitions vary considerably. In the first place there emerges the important question, whether it is a visible or an invisible body. This is not the place to discuss which is the view set forth in Holy Scripture,—that being of course the very point at issue. It must here suffice to say that the disciples of Calvin (followed herein by a very large number, probably the majority, of purely Protestant communities) maintain that it is invisible; while the Lutherans, the Roman Catholics, the Oriental Christians, and the great bulk of the more famous Anglican divines (in accordance with the Anglican formularies) maintain it to be visible. This latter view is, it need hardly be said, the one all but universally adopted by the fathers and the schoolmen. In one passage, however, of his later writings, St. Augustine employs an expression at variance with his usual tone, and favorable to the Calvinistic view, by calling the church "the society of the predestined."

3. The relations considered to exist between the visible church and Holy Scripture must necessarily be those of coördination, or of sub-ordination on one side or the other. An impartial estimate of the Anglican formularies would probably be found to support that view of coördinate authority of Scripture and the church which is taken by a large body of her divines, such as Bishops Pearson, Bull, Cay, Dean Jackson, and others; though many of her adherents would undoubtedly incline, more or less completely, to that more Protestant view, which subordinates the church to Scripture, a view held most strongly by those bodies whose confessions of faith (as, e.g., the Westminster Confession) seem to imply that the books of Scripture attest themselves as divine. In the Church of Rome there can be no question but that the church is placed above Holy Scripture; for though Scripture proofs of doctrine are always, if possible, sought by her controversialists, and referred to in her symbolical standards (as, for instance, the Tridentine decrees), yet the traditions preserved in the church are spoken of as to be venerated not merely as comments on the meaning of Scripture, but as deserving equal honor and reverence with Scripture. (*Decret. Conc. Trident.*, sessio iv.) On the other hand, the Anglican formularies teach that Holy Scripture contains all things necessary to salvation, though the church is described as the witness and keeper of Holy Writ and as having authority in controversies of faith. The school of Anglicanism represented by Field, Hammond, Pearson, Bull, and Bramhall regards a judgment of the church universal, such as that of the Council of Nice against Arius, as "irrevocable, irreformable, never to be altered." The Eastern Church seems to place the relation of Holy Scripture to itself in almost the same position as this school of Anglicans, though it would perhaps lay somewhat stronger stress on the insufficiency of Scripture without the voice of the teaching and interpreting church. It may be remarked that in this, as in other matters, belief has from time to time been greatly influenced by the course of events. In the first age of Christianity, before the canon of the New Testament was formed, the church is almost everything, and the Bible, which chiefly consisted of the Old Testament, was subordinate.

By about 200 A.D., when the gospels were becoming better known, the relation between Scripture and the church appears in patristic writings much more like one of coördination. During the Middle Ages, as the church's political power increased, Holy Scripture became more and more subordinate, until we find Dante complaining of the way in which not merely creeds and fathers but canon law and the decretals are studied instead of the Gospel. The Reformation necessarily caused a reaction, built, as it was so largely, on new translations and on the circulation of the Bible; and in the following century we find the successors of the Reformers laying more stress upon what is commonly called the verbal inspiration of the Scripture and its infallible authority than had been done for the most part by the fathers (except perhaps St. Augustine) or by the first Reformers, Luther and Calvin, and their contemporaries, who never seem to have sanctioned the famous *dictum* of Chillingworth, "The Bible, and the Bible only, is the religion of Protestants." Of late years the difficulties arising from science, philology, history, and criticism have tended to modify this view of the supremacy of Scripture. Not only in the unreformed communions and among Anglicans and Lutherans, but even in Calvinistic bodies, is this effect perceived. Thus we find an eminent Presbyterian divine, a minister of the Scottish Establishment, writing as early as 1848, "The living church is more than the dead Bible, for it is the Bible and something more." The comment made by Kant on the inconsistency of those Lutherans who virtually say "Go to the Bible, but do not find anything there except what we find" is well known.

4. Turning to the constitution and government of the church, it is singular that in none of the symbolical utterances of the leading Christian communities is there found such a definition of the church as would really include all that is believed by those respective bodies. Nor is it easy to supply the want by appeal to divines, though many have striven to set forth the "notes" of the true church. Neither the Roman Catholic Tridentine decrees nor the Westminster Confession supply any definition, and the one given in the nineteenth of the Articles of the English Church leaves the questions at issue between Rome and the Reformers, between Episcopacy and Presbyterianism, entirely open. For all would claim to represent that "visible church of Christ" which is there described as "a congregation of faithful men, in which the pure word of God is preached, and the sacraments be duly ministered according to Christ's ordinance in all those things that of necessity are requisite to the same."

Concerning the question of government there are four leading views. The first is, that no form of government was instituted by the divine Founder of the church or His apostles, that there was originally no distinction between clergy and laity, but that officers were in due time appointed as might happen in any human society, for the sake of order and convenience. This view, which is probably that of the majority of Protestants at the present time, has found a thoughtful, devout, and highly gifted exponent in the historian Neander. A second view is, that a government was in such wise instituted as rightly to claim a *jus divinum*, that this government resides in presbyters, and is handed down by succession through the presbyterate. This view was maintained by many foreign adherents of the Reformation, and in England by Richard Cartwright, the Puritan opponent of Hooker, and an entire school of his day. They appeal to history, especially that of the Alexandrian Church, and to the fathers, more especially to St. Jerome. The third view resembles this in principle, but assigns the governance to a superior order, that of the

bishops, and makes the succession pass through them. The Anglican communion acts upon this view, re-ordaining all ministers not episcopally ordained, but accepting Greek or Roman Catholic ordination; and it has been defended by many of the writers of the High Church school, above named, to whom may be added Bishop Bilson, and the able Scottish controversialist Bishop Sage in his work against Gilbert Rule. (See also Bishop Cotterill's *Genesis of the Church*, and article BISHOP). This school lays great stress on the decisions of the œcumenical councils, of which it recognizes six or (according to Bishop Andrewes) seven before the division of East and West.

This view, though strongly supported by the Eastern churches as well as by an historical and living school of Anglicans, is undoubtedly open to the difficulty, acknowledged by Mr. Gladstone and others, of making the church as a collective body remain silent for some thirteen centuries and still unable to speak. There remains the fourth, the Roman Catholic view, which subjects the entire episcopate to the bishop of Rome, and makes full communion with him of the essence of churchmanship. This view has been supported ever since the Middle Ages with immense zeal and learning by many able Catholic writers. Although a strong case against it has been made out from the fathers, especially the Eastern ones, and although the state of matters just before the Reformation was everywhere one of gross abuses and much superstition, yet the good points of the Papacy have been fully recognized by Protestants and Anglican writers, such as Guizot, Michelet, Comte, Ranke, Sir James Stephen, Dr. Arnold, Archbishop Trenck, and Bishop Harold Browne. Nevertheless, the increasing development of the Papal claims has been strongly resisted within the pale of that church by the Jansenists, by the Gallican divines such as Bossuet, and by the entire body of the Port Royalists, including such brilliant names as those of St. Cyran, DeSacy, Arnauld, and above all Pascal. All these display a Calvinistic element in their teaching, and more or less (as for instance Fleury in his famous Church History) modify the distinctively Roman characteristics most opposed by Protestants, and they place a general council far above the Pope. In our own day the counter-theory among Roman Catholics, of which DeMaistre was a leading spokesman, has been seemingly ratified by the Vatican Council and the Pope declared infallible. This extreme step has provoked a schism among Roman Catholics, and alienated some of their most eminent men.

Of the different views entertained concerning the relation between church and state, it must be enough to say here that occasional collision seems almost unavoidable. For where two important societies lay claim to a common ground, those claims, unless precisely defined, will sometimes militate. No state has yet been known to carry out the theory of Locke, and confine its attention purely to the preservation of life and property. But every state which considers public morality to be within its sphere, and legislates on such matters as marriage and education, must of necessity occupy to some extent the same ground as the various Christian communities which claim to be the local church.

CHURCH HISTORY. Considered as a department of universal knowledge, church history forms a special section of the religious history of mankind. It is an account of the growth and the transactions of the religious community which is marked out from others by its attachment to Christianity. This definition already excludes from consideration a region of inquiry important in itself, which is sometimes regarded as forming an in-

tegral part of the subject. Starting from that idea of the church which is represented etymologically by the undoubtedly false derivations of the word from the German *küren*, to choose, or the Greek *κύριον οἶκος*, the (figurative) house of the Lord, various writers have assumed the church to be that special section of mankind who in any age have enjoyed the true revelation of God as given by Himself, and they have in consequence regarded church history as bound to deal first with the Old Testament church and then with the church of the New Dispensation. This, however, involves an amount of dogmatic prepossession to which history, simply as such, cannot commit itself. Surveying the field of mere objective fact, history can single out, under the general appellation of the church, a great society whose origin can be distinctly traced up to the personal activity of Christ, who, for this society, forms a definite and wholly new historical commencement. Whatever etymology we assign to the word church under its various modifications of *kirche*, *kirk*, *kerk*, *cyrkew*, *zerkow*, &c.,—whether we follow the derivation suggested by Walafrid Strabo in the ninth century, and extensively held since, from *τὸ κυριακόν*, the Lord's house, as a term introduced by the Greek missionaries into the language of the heathen tribes whom they converted, or whether we adopt the not less probable conjecture of Lipsius, and ascribe its origin to "circ" or "cerc" (connected with the Latin *circus*), the local name for the temple of Northern paganism, adopted by ancient and mediæval Christianity, in conformity with its principle of accommodating itself as far as possible to the usages of its proselytes—there can be no doubt that the community and the movement, which, under some form of the name church among the Germanic races, and of the name of *ecclesia*, such as *eglise*, *chiesa*, &c., among the Latin nations, succeeded in subjugating the Roman empire, along with extensive regions beyond it on all sides, to a religion whose personal center is Christ, form a fresh phenomenon in the history of mankind, as distinct and individual in its character as Hellenism, Hinduism, or Mohammedanism. In the view of history proper, therefore, the history of Judaism cannot be taken as forming a part of the history of the church.

For the same reason history cannot take action upon a class of distinctions recognized by many who assume the functions of the church historian. Such writers, adopting some strict and special definition of the church, confine the work of church history to that section of professing Christians whose condition satisfies the terms of their definition, any other so-called division of Christendom coming in for a share of attention only in the narrative of the opposition encountered by the church. History, in the proper sense, cannot undertake to decide questions of this description. To say which among many competing churches is the true church involves a dogmatic deliverance, which is beyond its province. It must do its work in a more rough and general fashion. Under the name church it comprehends all organizations avowedly basing themselves upon Christianity and recognizing Christ as in some sense their head and leader. It undertakes to delineate the story of these in the aggregate; and with regard to the distinctions between them, and their pretensions to condemn and exclude each other, it confines itself to narrative, without attempting adjudication.

Church history, including or coördinate with history of doctrine, stands in an important relation to dogmatics. Dogmatics (which also contribute the formal as well as, in part, the material element in Christian ethics) is charged with the scientific statement and proof of whatever is held to be the true doctrine. In the sphere of statement the history of the church is necessary, both as

introduction and commentary. Doctrine is a growth, an evolution of part after part, under the influence of special circumstances at special times. The full meaning of doctrine can therefore often be understood only in the light of its antithesis, and its relative importance as essential or accidental ascertained only from the practical crisis which demanded its declaration,—aids for which recourse must be had to the history of the church and its doctrine. As regards, therefore, the scientific articulation, proportioning, and interpretation of doctrine, church history stands in the position of an essential preliminary to dogmatics.

As regards actual church life, and any new expression of it in worship, constitution, or propagandist effort that assumes to be based on scientific principle, the history of the church is indispensable, not only for the extended view of present circumstances that may be requisite, but also to enable the church fully to know and judge its own mind. The existing church consciousness is the product of all the past, and cannot be fully understood and criticised except in the light of its history.

The sources of church history are either monumental or documentary. Monumental sources yield such intimations of past transactions as are to be found on avowed monuments, memorial tablets, gravestones, churches, and other public edifices or private dwellings, or upon articles of antiquity, seals, crucifixes, furniture, vestments, pictures, coins, weapons, &c. Documentary sources, as their name implies, include all manuscript or printed information, whether originals, copies, or oral traditions committed to record. In point of comparative value, the documentary sources are, of course, the more important, being, from the nature of the case, so immeasurably richer in information. At the same time, within their own range, monumental sources are often more valuable than documentary. Forgery has less chance of success in monuments than in documents; and certain classes of facts are frequently commemorated on them which writers do not think of recording. Dates and names and the like have been fixed by inscriptions on coins, &c., where documents have proved defective or wrong.

Documentary sources may be divided from the point of view of their destination into Public and Private, and from that of their authorship into Direct and Indirect. Under the head of public documents we have all deliverances of an official character, such as decrees of councils, Papal bulls, civil legislation affecting the church, rules of life for monastic institutions, liturgies, confessions of faith, and even sermons, theological treatises, &c. Private documents, again, consist of personal memoirs and journals, letters, secret correspondence, and papers not originally intended for the public eye. Then by direct documentary sources are meant those in which we have the actual word of a writer or actor in any event testifying to the nature of the opinion or transaction about which information is desired. Indirect documentary sources are those in which we obtain information about the opinions of an author or the actions of any historical character, not from statements of his own, but from the testimony of some one else about him. Thus, a letter of Constantine would be a direct document in reference to some purpose or performance of his own, while it might be an indirect document in reference to the history or opinions of Athanasius or Arius.

In collecting and sifting these sources so as to place all and only the right materials available before the church historian, recourse must be had to the sciences of antiquities, bibliography, and diplomatics. Antiquities, in its various divisions of numismatics, ecclesiology,

heraldry, &c., marshal all the relevant monumental testimony and discriminate the spurious from the genuine; bibliography, taken in its widest sense, as the science which enumerates, classifies, and values all that has been written upon the various heads of human knowledge, states what documentary material is likely to be available at the different stages of inquiry, and where it is to be found; while diplomatics, or the science of documents, define the genuineness, completeness, and general trustworthiness of the material so indicated.

Besides these more immediate sources there are collateral sources on which church history must draw in fulfilling its task. These are mainly ecclesiastical philology, the general history of Christendom, with ecclesiastical geography, statistics, and chronology. Ecclesiastical philology points to the acquaintance with those languages, more particularly Greek and Latin, in which the chief part of the historical materials is expressed, whether as original or translation. The necessity of this is obvious. Besides this, some knowledge of the general history of Christendom is indispensable to an understanding of the history of the church, just as the special history of the church is essential to a comprehension of general history. The events of the church and of the world are so inextricably bound up together that the one are intelligible only in the light of the other. Hence the history of policy, law, philosophy, literature, and art must be laid under contribution in constructing a full history of the church. Clear treatment further requires acquaintance with ecclesiastical geography and statistics, the distribution of the world into Christian and non-Christian sections, divisions by patriarchates, dioceses, parishes, &c., and the physical characteristics and social habits of different localities. And along with this, ecclesiastical chronology, the correct arrangement of persons and events, both in their contemporaneous appearance and in their succession to others, is requisite to complete the list of auxiliaries to church history.

After the sources, the method of dealing with them, so as to produce history, falls to be considered. Method here comprises two main divisions,—Criticism and Construction. In the criticism of the materials two qualities have to be called into exercise,—the judicial faculty and historic insight. The judicial faculty has to determine two questions,—first, How far are the sources to be relied on? and second, If to be relied on, what do they really say? The question how far the sources are to be relied on depends on both the ability and the willingness of the writer to tell the truth. As to his ability, we must consider how far he was in a position to be aware of the facts, and to what extent his judgment and penetration are to be trusted in matters of fact. He may have been credulous, or an incompetent or careless observer, or he may have been so greatly biased by party feeling or personal animosity as to be incapable of forming an impartial opinion. Then, besides the writer's ability to tell the truth, there must be considered, further, his willingness to tell it. A writer may be perfectly able to tell the truth, if he liked. But he may not like. He may have reasons or motives of his own for withholding the truth, or even for substituting untruth. In using his sources the historian must be able to judge exactly how far they are in these respects to be relied on. Then supposing he has decided that they may be relied on in a given degree, he must next be able to take from them precisely the testimony as to past fact which they convey, neither more nor less. That is to say, he must be impartial,—capable of holding the scales of fairness evenly, of controlling his mind so as to prevent any preferences of his own from weakening or distorting the statement of fact derivable from his authorities, in favor of his own opinions.

The historical materials having been subjected to criticism of the kind indicated, the way is open for the actual construction of the history. Construction embraces arrangement, proportion and style. Under the head of arrangement there falls to be considered how the material of history is to be divided so as to give the most complete and just conception of what has occurred within the time to be dealt with. Proportion has to be considered in the construction of church history for two reasons,—one depending on the relative prominence of different phases of church life at different times, the other on the relation of church life to its territorial or sectarian distribution. As regards the first of these reasons, while the categories of progress, constitution, doctrine, worship and life furnish in the order of interdependence, a summary of headings under which the movement of the church at any time may be exhaustively described, it is obvious that whichever of these categories represents the main feature of the ecclesiastical condition during any particular period should receive a corresponding prominence and fullness of treatment in the history of the period. At one time the progress of the church in the conquest of adverse religions may be the most striking thing about it, at another it may be the formation of doctrine, at another development of ritual, and so on. To be a faithful reflex of the facts, history must proportion its treatment to the case, assigning the principal place to the principal thing, and grouping the rest around it.

With respect to style, apart from the general canons on the matter derivable from the science of rhetoric, there are one or two special conditions dictated to the church historian by the nature of his subject. He is engaged on a description of what is a lively and varied panorama of events—his model, therefore, should be the picture, not the inventory. He is dealing with the progress of a divine idea through the ages—he is bound to leave a certain impression of majesty on the mind of his reader. He is handling matters that concern all men, and that have moved the profoundest and the most passionate natures to the very depth of their being—his pages should be alive with genuine biographical interest and every relevant form of human sympathy.

The history of the Literature of the subject divides itself naturally into three periods, which may be called the Unscientific, the Transition, and the Scientific periods. Speaking roughly, the Unscientific period may be said to have lasted until the Reformation, the Transition from the Reformation to the time of Mosheim, and the Scientific since then.

The Unscientific period of church history is marked by the absence of impartiality, of thorough criticism, of natural arrangement, and of what, since the days of Polybius, has been called the pragmatic method, *i.e.*, the treatment of historical phenomena with reference to their causes. The idea of the subjection of history to law had not yet emerged. The church especially was governed by arbitrary divine interpositions, whose effects could not, in any degree, be calculated beforehand; and as the conception of general councils as the organs of the Holy Spirit gained ground, that of ecclesiastical events, and particularly doctrine, as developments in the sequence of ordinary cause and effect vanished more completely if that were possible. History was simply a collection of incidents, often incredibly marvellous, threaded by no connection except that of appearing to intimate the favor of God for the Catholic Church, and with no other arrangement than the arbitrary one of years, or decades of years, or of the reigns of emperors or popes. This was simply the period of the collection of materials for subsequent scientific history to sift and work into proper form. During the first six

centuries the Greek Church furnished almost all that was valuable in church history, but after that it ceased to be productive, and Latin writers took possession of the field. At the head of the Greek School stands Eusebius, bishop of Cæsarea in the earlier part of the 4th century, usually called the father of church history, although that title strictly belongs to Hegesippus, who about the middle of the 2d century wrote certain ecclesiastical memorials, all of which have perished, with the exception of a few fragments mostly preserved by Eusebius himself. The history or chronicle of Eusebius, coming down to 324 A.D., although impaired in value by the writer's avowed resolution to record only what would reflect honor on the church, is rich in material, the archives of the empire having been placed at his command by Constantine, who held him in peculiar esteem. The other Greek historians were simply continuators of Eusebius. Socrates and Sozomen brought down the narrative to 439, and Theodoret to 428. Of these Socrates writes the best style, while Theodoret gives most new documents and information, especially as to the East. Evagrius treated of affairs from 431 to 594, while Philostorgius, most of whose work is lost, wrote, in the Arian interest, a history from the rise of Arianism to 423. The only other Greek historians of any note are Eutychius of Alexandria, about 940, who is chiefly valuable on the relations of Mohammedanism and Christianity, and Nicephorus Callisti of Constantinople, about 1350, who, with the assistance of the documents in the library of St. Sophia, wrote a church history to the end of the 6th century. To these may be added, as completing the Greek sources, the ecclesiastical allusions in the long line of Byzantine civil historians from 500 to 1500.

The Transition period in church history may be taken as beginning with the Reformation. It was marked on all sides by a more searching and comprehensive survey of the sources, and on some sides by an absence of the credulity, which accepted tradition as genuine, and every act and utterance of the dominant church as divinely guided. It was, however, still for the most part devoid of the spirit of impartiality and of the idea of law as traceable in the succession of events, and consequently recognized no great and gradually involved crisis in history, naturally dividing it into periods. It was an approach to the scientific, without actually reaching it. It was stimulated and aided by the same causes which assisted the Reformation itself. The spirit of inquiry was abroad. Already, in the field of the history of the church, Laurentinus Valla had led the way in the direction of true criticism by discrediting the legend of the donation of Constantine, in which he had been followed to a certain extent even by Antonius. The rise of humanism, consequent on the fall of Constantinople, and migration of Greek scholars to the West, had unlocked the store-house of material contained in that language, while the invention of printing, by bringing the sources under the eye of an immensely enlarged and practically unlimited circle of observers, increased proportionately the chances of unpledged criticism. It was the shock of the Reformation itself, however, which gave the impetus to the new movement in the construction of church history. As Protestantism had everywhere broken more or less completely with tradition, it was for its interest to show that Catholicism had departed from primitive purity, and that the history of the church had been a steady course of declension, while Catholicism was equally interested in proving the contrary. This polemical animus, if it was prejudicial to impartiality of investigation, added to its keenness and thoroughness; and as the spirit of sectarianism developed, within Catholicism, between Ultramontan-

ism and Gallicanism, Jesuitism and Jansenism, and, within Protestantism, between Lutheranism and Philippism, Calvinism and Arminianism, Presbyterianism and Episcopacy, the zeal of each party to vindicate for itself an exclusive apostolic pedigree, led to an unflinching, if one-sided, sifting of history, especially of primitive antiquity. The way was led in this direction by the *Madgeburg Centuries*, so called from the place of first publication in 1559. This was a work written by a staff of Lutheran scholars, in the interest of their phase of Protestantism, under the superintendence of Matthias Flaccius, and was, from its own point of view, a performance of great ability and learning, continuing for a century to be the store-house of general Protestant polemics. As its name implies, it adopts the artificial division into centuries, discussing the doctrine, heresies, councils, ceremonies, church rulers, &c., in each. The published portion stops with the thirteenth century. The *Centuries* evoked on the Catholic side, in 1588, the *Ecclesiastical Annals* of Cæsar Baronius, afterwards cardinal, bringing the history down to the end of the twelfth century; and this, with the continuations of Raynaldus and others, and the critical commentary of Pagi, forms, from its richness in documents that would otherwise have remained inaccessible, a very valuable contribution to general church history, although written avowedly to present Catholicism in the most favorable light. These great polemical histories led the way for a train of successors on both sides.

The Scientific period of church history may be said to commence with the great work of Mosheim in 1755, based on an earlier but inferior performance. Mosheim may be called the first fruits of this spirit in the region of church history. His *Institutes of Ecclesiastical History* is constructed avowedly in the interests of science and not of party, with the sole view of stating the facts, fully and exactly as they occurred — ascertaining and declaring the objective reality, independently of subjective partialities or wishes. His fidelity to his principle is conspicuous, and his success in overturning many previous misrepresentations arising from the neglect of it is undoubted. Mosheim has had a train of successors on his own line of investigation, whose name is legion, and in whose hands the scientific method has been steadily developed, and has yielded an increasing harvest of results. Only a few can be mentioned.

Probably no writer of the century has left a deeper impress on the method of studying and constructing church history than F. C. Baur, who, from 1835 to his death in 1860, gave to the world a series of works bearing on this subject, and culminating in his great *Church History*, which, for wealth of erudition and variety of genius, gave him a unique position even in the land of great scholars that claims his fame. Whatever may be thought of his special conclusions, it is certain that since his labors, the study of the history of Christianity, especially during the earlier centuries, must be a far more thorough and profound thing than ever it was before. He may, as has been said of him, be too unwilling to admit the possibility of an entirely new germ of spiritual force in the inception of Christianity, he may be too much warped by a Hegelian tendency to resolve all historical movements into an alternation of antagonisms and conciliation, but his vast mastery of details and marvelous power of marshalling far-scattered facts in support of a startling and unexpected theory have necessitated a new and more penetrating scrutiny of early sources, which is far from being completed at this hour.

In the Roman Catholic Church, of course, scientific church history in the true sense is not to be expected; but there have been movements towards it, and painstaking

ing contributions have been made, which may prove useful in the hands of an unfettered writer.

Besides the powerful but one-sided ecclesiastical chapters of Gibbon, the original researches of Routh and Burton, and the splendid works of Milman on Christianity and Latin Christianity, replete with critical sagacity, graphic power, and philosophic insight, Great Britain has not produced anything that deserves to be set beside the Continental masterpieces. Much valuable material in the form of historic monographs, biographies, and archæological issues by individuals and societies has been produced both in England and Scotland, but nothing that deserves the name of a great church history, whether special or universal.

CHURCHILL, CHARLES (1731-1764), the satirist, was born in Westminster, where for many years his father held the curacy and lectureship of St. John's. At eight years of age he was sent to Westminster School, where he made no figure except by his irregularities. At nineteen he applied for matriculation at Oxford, but was rejected. He was afterwards admitted to Trinity College, Cambridge, which he quitted immediately, and to which he never returned. A Fleet marriage contracted about this time obliged him to retire, first to his father's house, and afterwards to Sunderland, where he began to study for the church. In 1756 he was ordained priest, and officiated in his clerical capacity at Cadbury, in Somersetshire, and at Rainham, in Essex, at which latter place he was obliged to eke out his living by teaching. On his father's death in 1758, Churchill succeeded to his curacy and lectureship, and officiated for some time, employing his leisure in reading the classics at a ladies' boarding school and with private pupils.

But his innate Bohemianism was too strong to allow of such a quiet way of life for long together. He gave himself over, in conjunction with Lloyd the poet, who afterwards died in the Fleet, to every kind of loose living, ran into debt, was pursued, and had a composition of five shillings in the pound paid by the father of his boon companion. Part of the experience gained during this period he used in his first published poem, *The Rosciad* (1761), a reckless but amusing satire on the artists of the several London theaters, which was issued anonymously. The success of this work was astonishing; Churchill was not backward in avowing its authorship; and the same year he avenged himself on its critics in *The Apology*, a poem in which he adopted the systematic and scurrilous personality that was to make him rich and famous. He was at this time in his thirtieth year, and in the plenitude of his powers. His conduct, which had scandalized his parishioners, drew down the censure of his dean. The satirist at once resigned his charges, discarded his cassock and bands, and appeared *en viveur*. He separated from his wife, and apologized in the poem of *Night* (1762), which is a sufficiently impudent piece of irony; and in the same year he published, at irregular intervals, four books of Hudibrastic doggerel called *The Ghost*, in which Samuel Johnson and his associates are ridiculed with some point and much brutality. An acquaintance with John Wilkes, which seems to have ripened rapidly into friendship, gave occasion for two of Churchill's strongest efforts, *The Prophecy of Famine*, a violent attack on the Scottish influence and character, and *The Epistle to Hogarth* — the latter, which is said to have hastened the great artist's death, being a reply to Hogarth's two caricatures of Wilkes and his friend. In 1763 appeared *The Conference*, a second apology; *The Duellists*, three books of loose octosyllabics, called forth by the duel between Wilkes and Martin; and *The Author*, a satire of more general scope. These were followed in 1764 by *Gotham*,

another piece of indiscriminate censure; by *The Candidate*, an attack on Lord Sandwich; by *The Times*, the last of Churchill's successes; and *The Farewell and Independence*, which are worth little except as proofs of their author's decay. In the October of the same year he accompanied Humphrey Cotes to Bologne, where Wilkes was then in exile, and died there of fever in a few days. He left some property, the proceeds of his writings, and bequeathed the editorship of his poems, with the material for illustrations and notes, to John Wilkes, who contrived to elude the bequest.

Churchill was a literary bravo, a man who liked broils and beating, and who was at the same time not indifferent to the rewards earned by the conflict. His satires are generally rough and loose in texture, disjointed in structure, and insolent in tone. They are full of good metal, it is true, but the ore lies heaped over with too much schist to repay research. His extreme facility of composition is perhaps a reason for this, as it is a reason why, writing from day to day, he should have gained and kept the public favor. Cowper praised him, but at best he was but an admirer and imitator of Dryden.

CHURCHILL, JOHN, first duke of Marlborough. See MARLBOROUGH.

CHURCHYARD, THOMAS (1520-1604), "the Nestor of the Elizabethan heroes," was born at Shrewsbury in 1520, and was educated at Oxford. At seventeen he went to court, where he roistered through such money as he had. He then became attached to the earl of Surrey, applying himself during his three or four years of service to books, music, and the practice of poetry. He served his first campaign in Flanders (1542-1544) against the French, and his second (1547) in Scotland. He fought at Pinkie, but was captured next year at St. Monance, and did not return to England till 1550. A tract called *David Dicar's Dream*, written at this time, not only involved Churchyard in a fierce quarrel with a contemporary scribbler, but brought down on him the censure of the Privy Council; he only escaped the pillory through the interest of his patron, the duke of Somerset. A third campaign took him to Ireland, whence he returned in 1552. Having been unsuccessful in a love suit, he once more betook himself to the Continent, to serve his fourth campaign, at Metz and elsewhere, under the great emperor. His absence extended over three years. On his return he began writing harder than ever, dedicating two of his works to Queen Mary. The war with France made him a lieutenant in the English army, and at Guines he acted as mediator between the besieged and the besiegers. He next addressed a poetical appeal to Elizabeth; he got nothing, however, but fair words, and had to write his *Tragedie of Lord Mowbray*, a contribution to the *Mirror for Magistrates*. He fought at the leaguer of Leith in 1560; he again tempted fortune as a courtier; and he went off to Ireland, campaigning under Henry Sidney. In 1566 he wandered to Antwerp, where he headed a great force of religious partisans; but he speedily had to fly the country by reason, he says, of his extreme moderation. Next year he went back as one of Oxford's agents, returning to England in 1569, when he married. In 1593, after another journey to Scotland, where he witnessed Morton's execution, Elizabeth gave him a pension; and eleven years later, immediately after the publication of his last work, the *Blessed Balm to Search and Salve Sedition*, he died. Churchyard seems to have been an active, garrulous, and cheerful adventurer. Strype praises him as a good soldier and poet and a man of honest principles. Of his multifarious publications the *Legend of Jane Shore* is most highly esteemed.

CHUSAN, the principal island of a group situated

off the eastern coast of China, and belonging to the province of Che-keang. It lies N.W. and S.E., and has a circumference of fifty-one miles, the extreme length being twenty, the extreme breadth ten, and the minimum breadth six miles. The island is beautifully diversified with hill and dale, and well watered with numerous small streams, of which the most considerable is the Tungkeang, falling into the harbor of Tinghae. Most of the surface is capable of cultivation, and nineteen-twentieths of the inhabitants are engaged in agriculture. Wherever it is possible to rear rice every other product is neglected; yet the quantity produced is not sufficient for the wants of the inhabitants. Millet, wheat, sweet potatoes, yams, and tares are also grown. The tea plant is found almost everywhere, and the cotton plant is largely cultivated near the sea. The capital, Tinghae, stands about half a mile from the southern shore, and is surrounded by a wall nearly three miles in circuit. The population of the town and suburbs of Tinghae, which at the commencement of 1843 was about 27,500, had increased in 1886 to above 35,000. The population of the entire island is estimated at 250,000, of which the capital contains about 40,000. The island was taken by the British forces in 1840 and 1841, and retained till 1846 as a guarantee for the fulfilment of the stipulations of the treaty. It was also occupied by the English in 1860. See plan in *Four. of Royal Geogr. Soc.*, 1853.

CHUTIÁ or CHOTÁ NÁGPUR, a division or commissionership of British India, under the lieutenant-governor of Bengal, comprising the districts of Hazáribágh, Lohárdágá, Mánbhúm, and Sinhbhúm, and the seven tributary states which constitute the South-West Frontier Agency. It is bounded on the N. by the province of Behar, E. by the Bengal districts of Bánkurá and Midnapur, S. by the Orissa Tributary States and the Central Provinces, and W. by the independent state of Rewá. Of its area of 43,901 square miles a large portion is occupied by hills and jungle, and the population is very sparse. The population in 1888 was 3,925,576, residing in 29,000 villages or townships and 800,000 houses.

CHUTIÁ (CHOTÁ) NAGPUR TRIBUTARY STATES. These are seven in number,—Sirguja, Udaipur, Jashpur, Gangpur, Bonái, Koriá, and Chang Bhakár. At the decline of the Marhattá power in the early part of this century these states came under British protection. They are now under the political superintendence of the commissioner of Chutiá Nágpur, and the charge of them constitutes what is known as the South-west Frontier Agency. Before the rise of the British power in India their chiefs exercised almost absolute sovereignty in their respective territories. The Rájás now pay a light tribute to the British Government, and are invested with magisterial authority to punish offenders by fine not exceeding \$25, or by imprisonment not exceeding two years. The states are mountainous, thinly cultivated, and inhabited for the most part by wild aboriginal tribes. They cover an area of 15,419 square miles, the largest states being Sirgujá and Gangpur. Their aggregate population amounts to 405,980 souls, giving an average of twenty-six persons to the square mile. No towns exist in the tributary states, and only three villages contain more than 1000 inhabitants.

CHUTTERPUR, a city of British India, in the province of Bundelcund, 180 miles S.E. of Agra, and 140 S.W. of Allahabad. It was established by the Raják Chutter Sal, the founder of the short-lived independence of Bundelcund, and the resolute opponent of the Mogul empire in the seventeenth century. Situated but a short distance from the diamond mines of Pannah,

and forming an important entrepôt in the trade between the Deccan and Benares, it soon grew into a very flourishing city. It is still a thriving place, but it maintains its prosperity less by its transit trade than by its manufactures, of which the most important are paper and coarse cutlery.

CIBBER, or CIBERT, CAIUS GABRIEL (1630–1700), sculptor, was born at Flensburg in Denmark.

CIBBER, COLLEY, actor, dramatist, and laureate, was the oldest son of Caius Cibber, and was born in London in 1671. Sent in 1682 to the free school at Grantham, he distinguished himself by passing through all its grades, from lowest to highest, and by producing an “Oration” on the death of Charles II.—whom he had seen feeding his ducks in the park—and an “ode” on the accession of James II., with whom he had sat at worship in Whitehall Chapel. He was removed in 1687 on the chance of election into Winchester College. Caius Cibber, however, had not then presented that institution with his statue of William of Wykeham, and his son’s claim was ignored. The boy went to London, and amused himself with the theater, for which he had a passion. It was presently decided, on his own recommendation, that he should not return to school, but that he should go straight to Cambridge, for certain colleges in which university the sculptor was then executing commissions; meantime he was invited to Chatsworth, the seat of his father’s patron. On his way thither the Revolution broke out, and father and son met at Nottingham, where Colley Cibber was received, at the instance and in the place of Caius Cibber, into Devonshire’s company of volunteers. He served in the bloodless campaign that resulted in the coronation of the Prince of Orange, and on its conclusion, at his father’s request, presented a Latin petition to the earl—afterwards duke—imploping his interest and protection. By that nobleman’s desire the young man returned to London, and ere long his craze for things histrionic enrolled him in Betterton’s grand company of actors. After playing “full three quarters of a year” without salary, as was then the custom of all apprentice actors, he began to be paid ten shillings a week. His rendering of the little part of the chaplain in Otway’s *Orphan* procured him a rise of five shillings; and a subsequent impersonation, on an emergency, and at the author’s request, of Lord Touchwood in the *Double Dealer*, advanced him, on Congreve’s recommendation, to a pound a week. On this he contrived to live with his wife and family, and to produce a play—*Love’s Last Shift*. Of this comedy, highly praised by Southern and Dorset, Congreve said that it “had only a great many things that were like wit in it.” Vanbrugh honored it by writing his excellent *Relapse* as a sequel. In 1697 Cibber was included by Collier among the reprehensible in the famous *Short View*. In 1704 he brought out, for himself and Mrs. Oldfield, his best play, the *Careless Husband*, the most striking scene in which is said to have been suggested by an episode in the life of the notorious Mrs. Brett (better known as the Countess Macclesfield) to whom the MS. had been submitted. In 1711 with Collier, Wilks, and Dogget, he became a patentee of Drury Lane Theater, where in 1712, Addison’s *Cato* was produced under his management. In 1715, on the occasion of the Rebellion, Cibber adapted *Nonjuror* from Molière’s *Tartuffe*; the play, a mere *pièce de circonstance*, ran eighteen nights, and the author received from George I., to whom it was dedicated, a present of two hundred guineas. In 1726 he pleaded the cause of the patentees against Sir Richard Steele (who had succeeded Collier as manager of Drury Lane) before Jekyll, Master of the Rolls, and won his case. In 1730 Mrs. Oldfield died, and her loss was followed in 1731 by that of Wilks;

Cibber, who had been named laureate on the death of Eusden, sold his share in the theater, and retired from the stage, and only appeared thereafter on rare occasions. In 1742 occurred the quarrel with Pope, which resulted in the exclusion of Theobald and the elevation of Cibber as the hero of the *Dunciad*. At seventy-four he appeared on the stage for the last time as Panulph in his own poor tragedy of *Papal Tyranny*. His conversation (of which Johnson said that "taking from it all that he ought not to have said, he was a poor creature") was agreeable to the last, and he died as full of worldly honors as of years.

CICACOLE, a town of British India, in the presidency of Madras and district of Ganjam, about 58 miles N.E. of the town of Vizagapatam, on the left bank of the River Nagawalli or Naglandi, a few miles from its mouth. Population (1889), 13,000.

CICERO, MARCUS TULLIUS, born at Arpinum (Arpino) on the northern border of the Volscian territory, 3d January, 647 A.U.C., 106 B.C. His family was of equestrian rank, and his father, though living in retirement, was intimate with some of the public men of the day. The orator Crassus took an early interest in the young M. Cicero and his brother Quintus, and directed their education. As an orator, a statesman, and a man of letters Marcus became the most consummate specimen of the Roman character under the influence of Hellenic culture. He was first placed under the tuition of the Greek poet Archias, a teacher at Rome, with whom he read the poets and orators of Greece, composed in the Greek language, and also wrote Latin verse. This literary training he combined with study under the two Scævolas, the augur and the pontifex, and from these Roman masters he imbibed the spirit of the national law and ritual. His aim was to prepare himself by liberal as well as technical training for the career of an advocate; but the Roman institutions required him to serve in the field also, and he took part in the campaign of Sulla against the Italian confederates in the year 87. Returning to the city he betook himself once more to the pursuits most congenial to him, and attended on the teaching of Philo the chief of the Academics, of Diodotus the Stoic, and of Molo a philosopher of Rhodes. Many teachers had been driven at that moment from the schools of Greece by the invasion of Mithridates. Cicero, at the age of twenty-six, pleaded a civil cause in the speech *pro Quinctio*, (81 B.C.) and again in a criminal action against Roscius Amerinus in the following year. After these efforts, which brought him some distinction, he suddenly withdrew to Athens, on the plea of weak health, but probably to avoid the displeasure of the dictator Sulla. Here he studied under Molo and others, with a special view to the practice of declamation, and the management of his physical powers in a profession which made severe demands upon them. He traveled also through the Roman province of Asia, and stored up a vast amount of information in a mind singularly acquisitive and endowed with extraordinary facility of arrangement and expression, but with comparatively little fertility of invention or breadth and strength of character. Cicero was from the first an imitator and an adapter rather than an original thinker. He was throughout a follower rather than a leader in action as well as in speculation. His mental training disposed him specially to admire past models or cling to existing institutions, and he was always too easily subjected to the influence of characters stronger than his own. His position, indeed, as a new man, or a struggling candidate for political honors which neither his birth nor his means could naturally command, made it necessary for him to attach himself to the leaders of party; but his versatile talents soon ren-

dered him a valuable adherent, and it speaks well for the times in which his lot was cast, amidst the deep corruption which pervaded them, that his honest and enlightened patriotism was, on the whole, appreciated and rewarded.

It was from policy, but partly also from his own kindly feelings, that the young orator, on resuming his profession, preferred to distinguish himself in defense rather than in attack. This course impressed the good-natured public in his favor. Moreover, the class from which the judices were taken, conscious that the position of defendants in a criminal suit might at any time be its own, was often glad of an excuse for screening public delinquents. It may be said that even the impeachment of Verres was rather a defense of the injured Sicilians than a hostile attack upon an individual, who was allowed to withdraw quietly from the city. Cicero's triumph in this famous cause (70 B.C.) raised him to the pinnacle of reputation. He had already attained the quæstership, (77 B.C.) He succeeded to the ædileship in 69, and became prætor in 68, a year memorable in his career for the passing of the Manilian law, which he warmly supported, by which Pompeius was constituted commander against Mithridates with extraordinary powers, in the place of Lucullus. Pompeius was at this period accepted by the oligarchy as their leader, though not without reluctance and distrust. Cicero gladly attached himself to their cause, and flattered himself with the hope of reconciling the senate with the knights by a more liberal and genial policy. Meanwhile he hoped, by favor of the dominant party, to attain the consulship. He found himself a candidate for that magistracy along with Catiline, a man of ruined character and already under suspicion of plotting against the state. Nevertheless, he did not hesitate to combine with him in his canvass, and to undertake his defense on a charge of malversation. Cicero obtained the consulship; Catiline was defeated, and thereupon betook himself to treasonable machinations. It was the business of his late ally to track these intrigues and defeat them. The vigor and courage with which Cicero conducted himself at this crisis won for him by popular acclamation the title of "Father of his Country," (63 B.C.) But the nobles ill requited the service he had done them. They now felt themselves secure in their ascendancy. They affronted Pompeius, they made light of Cicero, and allowed him to be treated contumeliously by a tribune, who, under pretense that he had condemned citizens unheard, forbade him to make the usual declaration of the services he had performed in his consulship. Cicero, in laying down his office, was only permitted to exclaim—"I swear that I have saved the state." Cæsar, at the head of the popular party, countenanced this affront; while Pompeius, perhaps a little jealous of the rising statesman, on his return from the East vouchsafed him no cordial support. The real weakness of his position was made painfully manifest to him. He would not consent, however, to remove to a distance, and declining to sue for the government of a province, devoted himself for a time mainly to literary pursuits, composing among other things a poem on the glories of his own consulship. Meanwhile the enemies he had made became more emboldened. Clodius, a worthless demagogue, assailed him with a formal charge for putting citizens to death summarily without appeal to the people. In vain did he assume the garb of mourning, and traverse the streets as a suppliant. The magnates stood coldly aloof, and the factions arrayed against him did not scruple to menace his scanty defenders with violence. Cicero was obliged to seek safety in flight, and withdrew to Thessalonica. Clodius obtained a decree of the people for his banishment 400 miles from the

city, and the destruction of his house on the Palatine, the site to be devoted to the erection of a temple of Liberty, (58 B.C.)

Pompeius and Cæsar had suffered Cicero to undergo this humiliation for their own purposes, but they were not disposed to submit to the arrogance of the upstart Clodius, who was now making himself generally obnoxious. In the following year they let it be understood that the persecution should cease. The partisans of Clodius raised tumults in the city, but they were speedily put down, and a resolution for the exile's recall was carried in the assembly of the people. Cicero had betrayed much weakness under banishment. The exultation with which he triumphed on his return was hardly more dignified. The senate, however, complimented him, by coming forth to meet him, and the state undertook the restoration of his mansion. The armed opposition of Clodius was met by a counter demonstration on the part of Milo, a no less turbulent instrument of the oligarchy. But Cicero now felt himself powerless in the presence of chiefs of armies and leaders of factions. He attached himself more closely to Pompeius, and devoted his eloquence to the defense of his patron's creatures, while he courted more and more the pursuit of literature in retirement. The attainment of a seat in the college of augurs on the death of Crassus (53 B.C.) placed him in a position of dignity well suited to the taste of a constitutional antiquarian. But Cæsar, though now absent in Gaul, was rapidly becoming a great power in the state, and Cicero did not fail to pay court to him also, proposing to celebrate his British wars in an epic poem. The death of Clodius (52 B.C.), whose slayer, Milo, he defended, relieved him from the apprehensions he had never yet shaken off. He accepted, though not without reluctance, the lot which assigned him the government of Cilicia for the year following. His conduct in this post seems to have been highly meritorious. He checked the corruption of his officials while he preserved his own purity, and distasteful as warlike affairs were to his studious and quiet temper, he did not shrink from leading his troops against the restless mountaineers. His vanity induced him to aspire to a triumph for his success in these trifling operations; but in those degenerate days greater victories than his would have failed to secure such an honor, unless backed by the influence of the leaders of party, and neither Pompeius nor Cæsar was disposed to indulge him.

The civil war between these two rivals was now imminent. Cicero naturally threw himself into the ranks of the senatorial or conservative party, which was blindly following the lead of Pompeius; but he was coldly received by the violent men who ruled it, to whom his old-fashioned patriotism was utterly distasteful. Reluctantly, and with much misgiving, he quitted Italy in the train of the senate and consented to set up a shadow of the commonwealth on a foreign shore; while Cæsar attached to himself in the city, as dictator and consul, both the substance and the forms of constitutional power. After the disaster of Pharsalia and the rout of the senatorial forces, Cicero quickly threw aside his arms and returned to Italy, where Cæsar had left Antonius in command. He was soon relieved from apprehensions for his own safety by kind assurances from the victor, and while Cæsar was occupied in Egypt, Africa, and Spain, he withdrew altogether from public life. With his wife Terentia he had never lived happily; but he now took the step of repudiating her, which, according to the ideas of the times, caused no unfavorable remark, nor was it made matter of reflection upon him that he straightway married again his own ward Publilia, wealthy as well as beautiful. The young bride seems, however, to have contributed nothing

to his domestic happiness, and her, too, he soon repudiated for the satisfaction she had seemed to evince at the death of his much-loved daughter Tullia. During this period, however, he abstained from making advances to Cæsar, and did himself honor by composing a panegyric upon Cato, to which Cæsar condescended to make an ill-tempered reply. But the conqueror's clemency to Marcellus at last won his heart, and now, after the death of Pompeius, Cato, and Scipio, with all the other chiefs of his party, he could not refrain from declaring warmly in favor of the new ruler. Cæsar felt the compliment, and repaid it by sparing at his instance the life of Ligarius. The conduct of Cicero at this critical moment was undoubtedly the most truly politic. Other republicans, such as Brutus and Cassius, who had espoused the senatorial cause with feverish zeal or angry factiousness, did not scruple to give their actual support to the new government, and to accept office under it, while they secretly chafed against it and threw themselves into a conspiracy against the life of their master. The difference between their spirit and that of Cicero is marked by the fact that in a plot which numbered, it was said, as many as eighty men of public note, Cicero himself was not included. The covert assassins dared not consult with men of true honor.

When the deed was done, indeed, Cicero might fairly take part with its perpetrators in the name of the free state, which, in his sanguine view, might still be restored. When, however, the liberators, as they called themselves, repaired to the provinces to strengthen their party against the Cæsarians, Cicero declined to undertake active service. He remained in Italy, and employed himself in guiding, as he thought, the conduct of the young Octavius, the nephew and heir of the dictator. This crafty dissembler promised well, and Cicero expected to be able to use him as a convenient opponent to Antonius. It must be confessed that the veteran statesman was himself playing a part, and dissembling with the youth whom he meant eventually to get rid of. It was a game on both sides, and Octavius won it. He looked on with satisfaction while Cicero excited the passions of the citizens against Antonius in the series of orations to which he gave the name of Philippics, while he armed the consuls Hirtius and Pansa to overthrow him. The orator, now advanced in years, showed at this crisis all the vigor with which he had encountered Catiline twenty years earlier. To him the people entrusted the government of the city, and while all the forces of the republic were concentrated under various leaders on the Cisalpine, he might fancy himself for a moment the real controller of affairs. But, after the deaths of Hirtius and Pansa in the battles before Mutina, and the discomfiture of the republicans (under Decimus Brutus), Octavius, Antonius, and Lepidus formed a compact, and assumed to be a triumvirate, or a board of three special officers for the regulation of the commonwealth. Their arrival at Rome was followed by bloody proscriptions of their public and private enemies. Antonius demanded the head of Cicero, and Octavius yielded it. The orator fled, together with his brother, but he could not endure to abandon Italy, and after some weeks' delay, which seems to show that the pursuit was not keen, he was overtaken at the door of his Formian villa and his throat cut by the bravo Popilius. His head and hands were cut off and sent to Rome, where Antonius caused them to be affixed to the rostra, and Fulvia, the widow of Clodius and the wife of Antonius, pierced with her needle the tongue which had declaimed against both her husbands. Cicero perished at the close of the year 43, at the age of sixty-three. Octavius, in his later years, as the Emperor Augustus,

could coolly say of the great statesman and patriot to whose murder he had consented, "He was a good citizen, who really loved his country." The saying was indeed well deserved, but it should have come from purer lips.

Cicero was indeed not only a good citizen, but a good man; he loved not his country only, but mankind in general; he loved them not merely from a kindly nature, but from reflection and self-discipline. As a specimen of the highest culture of the ancient world, both moral and intellectual, he must ever stand preëminent. He was a wiser if not a more sincere patriot than Cato; his private virtues were subjected to a severer test than those of M. Aurelius. His intellectual superiority is sufficiently attested by the important place he attained, in the face of many disadvantages, in the conduct of public affairs. But a large portion of his multifarious writings still remains, and constitutes an enduring monument to his fame, which has been recognized through all ages. The great bulk of these works may be conveniently classed as (1) political, (2) philosophical, (3) personal. The first division comprises a collection of fifty-six speeches professing to have been delivered in the forum or the curia, though some of them certainly, as for instance that for Milo and the greater number of the Philippics, were written for publication but not actually delivered. The genuineness of that for Marcellus, and of the four which refer to the orator's return from exile, has been much questioned. Besides the speeches themselves, Cicero produced several treatises on the subject of oratory, which, as part of the Roman training for public life, may be regarded as political. Of these the principal are the *de Oratore*, the *Orator*, and the *Brutus*. The origin of the strictly technical treatises *de Inventione* and *Rhetoricorum* is involved in much perplexity. To this division belong still more strictly the important works *de Legibus* and *de Republica*, which contain valuable references to the events of early Roman history. To our second division belong the famous treatises on philosophy, from which we derive all our knowledge of the Greek systems which succeeded to the schools of Plato and Aristotle, and in which it became the fashion to affect an interest at Rome. Of these the *Academica*, the *Tusculanæ*, the *de Finibus*, and others which have been lost were devoted to speculative questions; the *de Divinatione* and *de Natura Deorum* refer more strictly to theological traditions; while the book *de Officiis* is an elaborate treatise on moral obligations. The smaller works *de Senectute*, *de Amicitia*, *de Consolatione*, and probably the lost essay *de Gloria*, may also be ranged more or less definitely under the head of practical philosophy. The third division embraces Cicero's letters in two series, the one those to his friend Atticus, the other (*ad familiares*) to his correspondents generally. To these may be added a collection of letters addressed to his brother Quintus. These together give an account of the writer's life almost from day to day; they are the most valuable of his works for the historical information they afford us, as well as for the insight they give us into the character, not of the writer only, but of many of the leading personages of the day. In both these respects they stand unique among the remains of antiquity, and few men of historical note even in recent times have been so fully presented to us in their correspondence as Cicero, whose life acquires thereby its transcendent interest for all students of human nature. It may be added that the great philosopher and orator amused himself further with more than one ambitious flight in poetry. His verses on his consulship attracted some attention from his countrymen, and a specimen of them has come down to us. He made also a Latin translation of the astronomical poem of Aratus, and proposed at least, as

has been above mentioned, to execute an epic on the invasion of Britain by Cæsar.

CICOGNARA, LEOPOLDO, COUNT, archæologist and writer on art, was a native of Ferrara, whose reputation is principally founded on his *Storia della Scultura*. This is a valuable book, but it is disfigured and weakened by the enthusiasm that led the author to sacrifice almost all the lights of modern sculpture to the reputation of his friend Canova, to whom the seventh part of the book is devoted. His work as president of the Academy at Venice was also excellent; to him are attributed the increase in number of the professors, the improvement in the courses of study, the institution of prizes, and the foundation of a gallery for the reception of Venetian pictures. Born 1767; died in 1834.

CID, THE, RODRIGO DIAZ DE BIVAR, the favorite hero of Spain, and the most prominent figure in her literature, has a name so obscured by myth and fable as scarcely to belong to history. So extravagant are the deeds ascribed to him, and so marvellous the attributes with which he has been clothed by the fond idolatry of his countrymen, that by some he has been classed with the Amadis and the Orlandos whose exploits he emulated. The Jesuit Masdeu stoutly denies that he had any real existence, and this heresy has not wanted followers even in Spain. The truth of the matter, however, has been expressed by Cervantes, through the mouth of the canon in *Don Quixote*. "There is no doubt there was such a man as the Cid, but much doubt whether he achieved what is attributed to him." The recent researches of Professor Dozy, of Leyden, have amply confirmed this opinion. There is a Cid of history and a Cid of romance, differing very materially in character, but each filling a large space in the annals of his country, and exerting a singular influence in the development of the national genius.

The Cid of history, though falling short of the poetical ideal which the patriotism of his countrymen has for 700 years cherished, is still the foremost man of the heroic period of Spain—the greatest warrior produced out of the long struggle between Christian and Moslem, and the perfect type of the Spanish Goth of the twelfth century. Rodrigo Diaz, called de Bivar, from the place of his birth, better known by the title given him by the Arabs as the *Cid* (*El Seid*, the lord), and *El Campeador*, the champion *par excellence*, was of a noble family, one of whose members in a former generation had been elected judge of Castille. The date of his birth cannot be fixed with any certainty, but it was probably between 1030 and 1040. As Rodrigo Diaz de Bivar he is first mentioned in a charter of Fernando I. of the year 1064.

Fernando, a great and wise prince, under whom the tide of Moslem conquest was first effectually stemmed, on his deathbed, in 1065, divided his territories among his five children. Castille was left to his eldest son Sancho, Leon to Alphonso, Galicia to Garcia, Zamora and Toro to his two daughters, Urraca and Elvira. The extinction of the Western Caliphate and the dispersion of the once noble heritage of the Omniades into numerous petty independent states, had taken place some thirty years previously, so that Castilian and Moslem were once again upon equal terms, the country being almost equally divided between them. On both sides was civil war, urged as fiercely as that against the common enemy, in which the parties sought allies indiscriminately among Christians and Mahometans. No condition of affairs could be more favorable to the genius of the Cid. He rose to great distinction in the war between Sancho of Castille and Sancho of Navarre, in which he won his name of *Campeador*, by slaying the enemy's champion in single combat. In the

quarrel between Sancho and his brother Alphonso, Rodrigo Diaz espoused the cause of the former, and it was he who suggested the perfidious stratagem by which Sancho eventually obtained the victory and possession of Leon. Sancho having been slain in 1072, while engaged in the siege of Zamora, Alphonso was taken from his prison and raised to the vacant throne. One of the most striking of the passages in the Cid's legendary history is that wherein he is represented as forcing the new king to swear that he had no part in his brother's death; but there was cause enough without this for Alphonso's animosity against the man who had helped to despoil him of his patrimony. For a time the Cid, already renowned throughout Spain for his prowess in war, was even advanced by the king's favor and entrusted with high commissions of state. In 1074 the Cid was wedded to Ximena, daughter of the count of Oviedo, and granddaughter, by the mother's side, of Alphonso V.

The original deed of the marriage-contract is still extant. Some time afterwards the Cid was sent on an embassy to collect tribute from Motamid, the king of Seville, whom he found engaged in a war with Abdallah, the king of Granada. On Abdallah's side were many Castilian knights, among them Count Garcia Ordoñez, a prince of the blood, whom the Cid endeavored vainly to persuade of the disloyalty of opposing their master's ally. In the battle which ensued under the walls of Seville, Abdallah and his auxiliaries were routed with great slaughter, the Cid returning to Burgos with many prisoners and a rich booty. These fresh proofs of his prowess only served to kindle against him the rancor of his enemies and the jealousy of the king. Garcia Ordoñez accused him to Alphonso of keeping back part of the tribute received from Seville, and the king took advantage of the Cid's absence on a raid against the Moors to banish him from Castille. Henceforth Rodrigo Diaz began to live that heroic picturesque life which has made him famous, sometimes fighting under the Christian banner, sometimes under Moorish, always for his own benefit. At the head of a band of 300 free lances he offered his services first to the count of Barcelona; then, failing him, to Mactadir, the Arab king of Saragossa, of the race of the Beni Houd. Under Mactadir, and his successors Moutamin and Mostain, the Cid remained for nearly eight years, fighting their battles against Mahometan and Christian, when not engaged upon his own, and being admitted almost to a share of their royal authority. He made more than one attempt to be reconciled with Alphonso, but his overtures being rejected he turned his arms against the enemies of the Beni Houd, extending their dominions at the expense of the Christian states of Aragon and Barcelona, and harrying even the border lands of Castille. Among the enterprises of the Cid the most famous was that against Valencia, then the richest and most flourishing city of the Peninsula, and an object of cupidity to both Christian and Moslem. The Cid appeared before the place at the head of an army of 7000 men, for the greater part Mahometans. In vain did the Valencians implore succor from the emir of Cordova, and from their co-religionists in other parts of the Peninsula. In defiance of an army which marched to the relief of the beleaguered city under Yussuf the Almoravide, the Cid took Valencia after a siege of nine months, on the 15th of June, 1094 — the richest prize which up to that time had been recovered from the Moors. The conditions of the surrender were all violated — the *cadi* Ibn Djahhaff burnt alive, a vast number of the citizens who had escaped death by famine slaughtered, and the possessions divided among the Campeador's companions. In other respects the Cid appears to have used his victory mildly, ruling his kingdom, which now embraced

nearly the whole of Valencia and Murcia, for four years with vigor and justice. At length the Almoravides, whom he had several times beaten, marched against him in great force, inflicting a crushing defeat at Cuenca upon the Cid's army, under his favorite lieutenant, Alvar Fañez. The blow was a fatal one to the aged and war-worn Campeador, who died of anger and grief in July, 1099.

Philip II. tried to get him canonized, but Rome objected, and not without reason. Whatever were his qualities as a fighter, the Cid was but indifferent material out of which to make a saint, — a man who battled against Christian and against Moslem with equal zeal, who burnt churches and mosques with equal zest, who ravaged, plundered, and slew as much for a livelihood as for any patriotic or religious purpose, and was in truth almost as much of a Mussulman as a Christian in his habits and his character. His true place in history is that of the greatest of the *guerrilleros* — the perfect type of that sort of warrior in which, from the days of Sertorius to those of El Empecinado, the soil of Spain has been most productive.

The Cid of romance, the Cid of a thousand battles, legends, and dramas, the Cid as apotheosized in literature, the Cid invoked by good Spaniards in every national crisis, whose name is a perpetual and ever-present inspiration to Spanish patriotism, is a very different character from the historical Rodrigo Diaz — the freebooter, the rebel, the consorter with the infidels and the enemies of Spain. He is the Perfect One, the Born in a Happy Hour, "My Cid," the invincible, the magnanimous, the all-powerful. He is the type of knightly virtue, the mirror of patriotic duty, the flower of all Christian grace. He is Roland and Bayard in one. In the popular literature of Spain he holds a place such as has no parallel in other countries.

The *Poem of the Cid* is but a fragment of 3744 lines, written in a barbarous style, in rugged assonant rhymes, and a rude Alexandrine measure, but it glows with the pure fire of poetry, and is full of a noble simplicity and a true epical grandeur, invaluable as a living picture of the age.

CIDER, an alcoholic beverage obtained by the fermentation of the juice of apples.

CIENFUEGOS, a town in the Spanish West India Island of Cuba, on its south coast. It has a population of about 9,000.

CIENFUEGOS, NICASIO ALVAREZ DE (1762–1809), poet and publicist, was born at Madrid. He studied with distinction at Salamanca, where he sat at the feet of the poet Melendez Valdez. The year 1778 saw the first of his poems published, and the attention of his countrymen was immediately attracted. He was appointed editor of the Government organs, the *Gaceta* and *Mercurio*, and an article on Napoleon, published in the former, drew down on him the heavy hand of Murat. Cienfuegos was condemned to death; he refused submission, and would assuredly have been executed but for the prayers of his friends. At their instance the sentence was commuted into one of deportation into France. Worn out with grief and fatigue, he died at Orthez in the following year.

CIGAR, a form in which tobacco is prepared for smoking without the use of a pipe. Cigars consist of certain portions of small and broken leaf tobacco rolled together in the form of a short stick or rod tapering to a point at one end called the curl or twist, and firmly wrapped round with one or two wrappings of whole leaf tobacco. The manufacture of cigars is usually conducted by hand-labor, and the operations are performed with great dexterity. The selected leaves to be used for wrapping are first damped and stripped or freed from

the midrib, by which each leaf is torn into two halves. These are smoothed out and pressed to remove any creases, and with a sharp knife the workman cuts each into the proper shape to form a wrapper. On each wrapper so prepared a sufficient quantity of small and broken leaf is placed, and the whole is then wrapped up in the form of a cigar. An external wrapper of fine uniform leaf is added and secured in a peculiar kind of knot at the smaller end. The thick end is trimmed by placing the cigar in a gauge and cutting it to a definite size. After finishing the cigars are dried on trays either by exposure to the sun or in artificial heat, and when thoroughly dry they are packed in boxes for sale. *Cheroots* differ only in form from ordinary cigars, sloping gradually from the thick to the thin end, which instead of finishing in a point, is cut and trimmed the same as the thick end. *Cigarettes* are small cigars, sometimes consisting of fine cut tobacco wrapped up in thin paper or inserted in straw tubes. Cigars are sold under an immense variety of names, derived either from the country of their manufacture, from the kind of tobacco used, or from the fancy of the manufacturer. The finest cigars are obtained from Havana in Cuba, and in them the thick ends are left untrimmed by the knife; but although this is characteristic it is obviously no test of genuineness. Cheroots come principally from Manila in the Philippine Islands. See TOBACCO.

CIGNANI, CARLO, was born at **Bologna in 1628**, studied under Battista Cairo, and afterwards under Albani. Though an intimate friend of the latter, and his most renowned disciple, Cignani was yet strongly and deeply influenced by the genius of Correggio, as a comparison of his drawing and of his manner of treating light and shadow with that of the painter of Parma will prove. His greatest work, moreover, the *Assumption* round the cupola of the church of the Madonna della Furca at Forlì, which occupied him some twenty years, and is in some respects one of the grandest and most remarkable works of art of the seventeenth century, is obviously inspired from the more renowned fresco of Antonio Leti in the cupola of the cathedral of Parma. His most famous pictures, in addition to the *Assumption* already cited, are — the *Entry of Paul III. into Bologna*; the *François I. Touching for King's Evil*; a *Power of Love*, painted under a fine ceiling by Agostino Carracci, on the walls of a room in the ducal palace at Parma; an *Adam and Eve*; a *Temptation of Joseph*, in the Florentine Palazzo Arnoldi; and a *Sampson*, in the Bolognese Palazzo Zambeccari. Died in 1719.

CIGOLI, or CIVOLI, LUIGI CARDI DA, painter, architect, and poet, was born in 1559 in Tuscany. Educated under Allori and Santo di Titi, he formed a peculiar style by the study at Florence of Michael Angelo, Correggio, Andrea dal Sarto, and Pontormo. Assimilating more of the second of these masters than of all the others, he labored for some years with success; but the attacks of his enemies, and intense application to the production of a wax model of certain anatomical preparations, induced an alienation of mind which affected him for three years. At the end of this period, he visited Lombardy, whence he returned to Florence. There he painted an *Ecce Homo*, in competition with Passignani and Caravaggio, which gained the prize. This work was afterwards taken by Bonaparte to the Louvre, and was restored to Florence in 1815. His other pictures of importance are — a *St. Peter Healing the Lame Man*, in the church of St. Peter's at Rome; a *Conversion of St. Paul*, in that of San Paolo fuori le Mura, and a *Story of Psyche*, in fresco, at the Villa Borghese, in the same city; a *Martyrdom of Stephen*, which earned him the name of the Florentine Correggio, a *Venus and Satyr*, and a *Sacrifice of Isaac*, at Florence;

and a *Stigmata of St. Francis*, at Foligno. Cigoli, who was made a knight of Malta at the request of Pope Paul III., was a good and solid draughtsman and the possessor of a rich and harmonious palette. He died in 1613 of grief at the failure of his last fresco (in the Roman church of Santa Maria Maggiore), which is rendered ridiculous by an abuse of perspective.

CILICIA, one of the most important provinces in the ancient division of Asia Minor, partly represented by the modern province of Adana. It comprised a large part of the southern coast of that country, extending from Pamphylia on the W. to Mount Amanus and the frontiers of Syria on the E. Throughout this extent it was bounded by the central ridge of Mount Taurus on the N. and by the Mediterranean on the S., so that its form was long and narrow, having a length in a direct line of nearly 270 English miles, while its breadth hardly anywhere exceeds sixty-eight miles. It is divided by nature into two portions of a very different character; the westernmost, known in ancient times as Cilicia Trachea or Tracheotis (the modern Itsch Ili), the Rugged Cilicia, a well-deserved epithet, as almost the whole region is occupied by a rugged mountain tract, formed by the branches and offshoots of Mount Taurus, which descend for the most part quite to the sea, while the interior is furrowed by deep and narrow valleys, leaving but scanty spaces fit for cultivation; the easternmost, on the contrary, called Cilicia Pedias, or "of the Plains," presenting a broad expanse of level alluvial plains round which the lofty chain of Mount Taurus sweeps in a semicircle, forming a great mountain barrier that encloses it like a wall on the north and east, and separates it from the extensive upland plains of Lycaonia and Cappadocia.

Though the boundaries of Cilicia, as above defined, were generally recognized in ancient times, the people of that name appear to have been in early days much more widely spread, and occupied a considerable extent of country north of Mount Taurus, as well as in the mountain regions extending towards Armenia. Thus Herodotus extends the name of Cilicia to the Euphrates, and must have comprised a large portion of Cappadocia under that appellation. There can be no doubt that the Cilicians, as well as the Cappadocians, were of Semitic or Aramaic descent, and belonged to the same stock as the Syrians, from whom, however, they were from a very early period politically separate. Cilicia appears as an independent kingdom under a monarch named Syennesis, in the time of Alyattes, king of Lydia, 610 B.C. (Herod., i., 74), and even after it passed under the Persian empire it continued to be governed by its own kings, all of whom appear to have borne the name, or rather appellation, of Syennesis. From its position Cilicia attracted much attention during the expedition of the younger Cyrus (401 B.C.), as well as in that of Alexander, whose first great victory over the Persian king was fought at Issus, in the narrow pass between Mount Amanus and the sea, (333 B.C.)

Cilicia now passed under the Macedonian rule, and was subject to the Seleucidan kings of Syria. But owing to the feeble and unsettled character of the government under the later monarchs of that dynasty, the western portion of the country, or Cilicia Trachea, became the stronghold of numerous pirates, who carried their depredations to such an extent as to compel the Romans to wage regular war upon them. It was not till 66 B.C. that they were finally subdued by Pompey, and Cilicia was regularly constituted as a Roman province, which, however, comprised, in addition to Cilicia properly so called, Pamphylia, Pisidia, Isauria, Lycaonia, and a large part of Phrygia. This was the extent of the province when it was governed by Cicero a

proconsul (51-50 B.C.), who obtained some successes against the mountain tribes of Mount Amanus, of which he was immoderately proud.

Under the Roman empire Cilicia was again reduced to its natural limits, but did not receive its final constitution as a province till the time of Vespasian. It retained its condition as such under the Roman and Byzantine empires till it fell, with the rest of Asia Minor, under the Seljukian Turks in the 11th century. After the break-up of the Turkish monarchy Cilicia was seized by the Armenians, who from the mountain district of Mount Amanus and Taurus gradually made themselves masters of the whole country, of which they retained possession, notwithstanding frequent struggles with the Lusignans — the lords of the neighboring island of Cyprus — till both were expelled by the Ottoman Turks, in the 15th century. From that period Cilicia has continued to form part of the Turkish empire, with the exception of the brief interval from 1833 to 1840, during which it was annexed to his dominions by Mehemet Ali, viceroy of Egypt; but after the defeat of that ruler by the allied powers he was compelled to evacuate Cilicia, which was reunited as before with the Ottoman empire.

CIMABUÈ, GIOVANNI (1240 to about 1302), painter, was born in Florence of a creditable family, which seems to have borne the name of Gualtieri, as well as that of Cimabue (Bullhead). He took to the arts of design by natural inclination, and sought the society of men of learning and accomplishment. Vasari, the historian of Italian painting, zealous for his own native state of Florence, has left us the generally current account of Cimabue, which later researches have to a great extent invalidated. We cannot now accept his assertion that art, extinct in Italy, was revived solely by Cimabue, after he had received some training from Grecian artists invited by the Florentine Government to paint the chapel of the Gondi in the church of S. Maria Novella; for native Italian art was not then a nullity, and this church was only begun when Cimabue was already forty years old. Even Lanzi's qualifying statement that Grecian artists, although they did not paint the chapel of the Gondi, did execute rude decorations in a chapel below the existing church, and may thus have inspired Cimabue, makes little difference in the main facts. What we find as the general upshot is that some Italian painters preceded Cimabue — particularly Guido of Siena and Giunta of Pisa; that he worked on much the same principle as they, and to a like result; but that he was nevertheless the most advanced master of his time, and, by his own works, and the training which he imparted to his mighty pupil Giotto, he left the art far more formed and more capable of growth than he found it. The undoubted admiration of his contemporaries would alone demonstrate the conspicuous position which he held, and deserved to hold. For the chapel of the Rucellai in S. Maria Novella he painted *in tempera* a colossal Madonna and Child with Angels, the largest altarpiece produced up to that date; before its removal from the studio it was visited with admiration by Charles of Anjou, with a host of eminent men and gentle ladies, and it was carried to the church in a festive procession of the people and trumpeters. Cimabue was at this time living in the Borgo Allegri, then outside the walls of Florence; the legend that the name Allegri (Joyous) was bestowed on the locality in consequence of this striking popular display is more attractive than accurate, for the name existed already. Other paintings still extant by this master are the following:— In the Academy of Arts in Florence, a Madonna and Child, with eight angels, and some prophets in niches,— better than the Rucellai picture in composition and study

of nature, but more archaic in type, and the color now spoiled (this work was painted for the Badia of S. Trinita, Florence); in the National Gallery, London, a Madonna and Child with Angels, which came from the Ugo Baldi collection, and had probably once been in the church of S. Croce, Florence; in the Louvre, a Madonna and Child, with twenty-six medallions in the frame, originally in the church of S. Francesco, Pisa. In the lower church of the Basilica of S. Francesco at Assisi, Cimabue, succeeding Giunta da Pisa, probably adorned the south transept,— painting a colossal Virgin and Child between four Angels, above the altar of the Conception, and a large figure of St. Francis. In the upper church, north transept, he has the Saviour Enthroned and some Angels; and, on the central ceiling of the transept, the Four Evangelists with Angels.

CIMAROSA, DOMENICO, an Italian musical composer, was born at Aversa, in the kingdom of Naples. His parents were poor but anxious to give their son a good education; and after removing to Naples they sent him to a free school connected with one of the monasteries of that city. The organist of the monastery, Padre Polcano, was struck with the boy's intellect, and voluntarily instructed him in the elements of music, as also in the ancient and modern literature of his country. To the influence of the same worthy monk Cimarosa owed a free scholarship at the musical institute of Santa Maria di Loreto, where he remained for eleven years, studying chiefly the great masters of the old Italian school. Piccini, Sacchini, and other musicians of repute are mentioned amongst his teachers. At the age of twenty-three Cimarosa entered the lists as a composer with a comic opera called *Le Stravaganze del Conte*, first performed at the theatre dei Fiorentini at Naples in 1772. The work met with approval, and was followed in the same year by *Le Pazzie di Stellananza e di Zoroastro*, a farce full of humor and eccentricity. This work also was successful, and the fame of the young composer began to spread all over Italy. In 1774 he was invited to Rome to write an opera for the *stagione* of that year; and he there produced another comic opera called *L'Italiana in Londra*.

The next thirteen years of Cimarosa's life are not marked by any event worth mentioning. He wrote a number of operas for the various theaters in Italy, residing temporarily in Rome, in Naples, or wherever else his vocation as a conductor of his works happened to call him. From 1784-1787 he lived at Florence, writing exclusively for the theater of that city. The productions of this period of his life are very numerous, consisting of operas, both comic and serious, cantatas, and various sacred compositions. The following works may be mentioned amongst many others:— *Caio Mario*; the three Biblical operas, *Assalonne*, *La Guiditta*, and *Il Sacrificio d'Abramo*; also *Il Convito di Pietra*; and *La Ballerina Amante*, a pretty comic opera first performed at Venice with enormous success. None of these works have survived, and their individual merits hardly give us cause to regret their loss. Excessive productiveness of this kind cannot but become mechanical. But this is no fault of Cimarosa's. The enormous demand of the Italian stage has become fatal to the genius of some of the most gifted composers of that country both in the last and in the present century. Looking at Cimarosa's works collectively, it may be said that they represent a style of considerable individuality and a perfect mastership of dramatic effect, so far at least as the vocal part is concerned. Cimarosa's orchestra, like that of most Italian composers, is somewhat meager, but here also the comparatively primitive stage of orchestration at the time he wrote ought to be taken into account. Cimarosa seldom succeeds in the highest walks of his art. His comic operas are infinitely superior to

those in which a tragic subject compelled him to attempt dramatic pathos. As far as grace and melodious charm are concerned, Cimarosa was surpassed by none of his contemporaries, not even by Paesiello, with whom he shared for a long time the leadership of the Italian school.

In 1787 Cimarosa went to St. Petersburg by invitation of the Empress Catherine II. At her court he remained four years and wrote an enormous number of compositions, mostly of the nature of *pièces d'occasion*. Of most of these not even the names are on record. In 1792 Cimarosa left St. Petersburg, the northern climate of Russia proving hurtful to the native of Italy. By invitation of the Emperor Leopold II. he went to Vienna, and it was there that he produced the masterpiece on which his claim to immortality must rest. *Il Matrimonio Segreto* ranks amongst the highest achievements of light operatic music. In Italy it is surpassed by Rossini's *Barbieri* alone. After the lapse of more than eighty years it evinces its vitality at theaters and concert halls wherever the whole opera or detached pieces are heard. Its humor is founded on human nature itself, and is therefore independent of local and temporal conditions. In 1793 Cimarosa returned to Naples where *The Secret Marriage* and other works were received with great applause. Amongst the works belonging to his last stay in Naples, the charming opera, *Le Astuzie Femminili* may be mentioned. This period of his life is said to have been embittered by the intrigues of envious and hostile persons, amongst whom one is sorry to meet with Paesiello, his old rival. During the occupation of Naples by the troops of the French Republic, Cimarosa joined the liberal party, and on the return of the Bourbons, was like many of his political friends condemned to death. By the intercession of influential admirers his sentence was commuted into banishment, and the composer left Naples with the intention of returning to St. Petersburg. But his health was broken, and after much suffering he died at Venice in 1801 of inflammation of the intestines. The nature of his disease led to the rumor of his having been poisoned by his enemies, which, however, a formal inquest proved to be unfounded. He worked till the last moment of his life, and one of his operas, *Artemizia*, remained unfinished at his death.

CIMBRI, or Cimbrians, an ancient nation of unknown affinity, which was one of the most formidable enemies of the Roman power, and has proved one of the most difficult subjects for the historical investigator. About 113 B.C., in company with the Teutones, they defeated the consul Papirius Carbo near Noreia in Styria; and in 109 B.C., they routed another army under the consul Silanus. By the latter success they opened their way to Gallia Narbonensis; and in 105 B.C. they began to threaten the Roman territory itself. They were joined by the Gauls from all quarters; and the Roman army sent against them under Cæpio and Manlius was almost exterminated. Only ten men with two generals are said to have escaped; and, in accordance with a vow which they had made before the battle, the conquerors destroyed all the spoil. The gold and silver they flung into the Rhone; they drowned the horses, and put all the prisoners to death. The Romans were thrown into consternation; but a new army was raised with all expedition, and the command was bestowed on Marius, who at that time enjoyed a high reputation on account of his victories in Africa. The Cimbri were approaching over the eastern Alps, and the Teutones and the other allies over the western. He first attacked and defeated the latter division at Aquæ Sextiæ, and then returned to face the Cimbri, who had meanwhile seen the backs of the soldiers of Catullus and Sylla. The vast host attacked the Romans with the utmost

fury in the Campi Raudii near Vercellæ (101 B.C.); but, unaccustomed to the heats of Italy, they soon began to yield and were easily overcome. They had put it out of their own power to fly; for, that they might the better keep their ranks, they had, like true barbarians, tied themselves together. It is said that 120,000 were killed on the field of battle and 60,000 were taken prisoners. The people of the Italian districts known as the Sette Comuni in Vicenza and the Tredecì Comuni in Verona have a belief that they are descended from the remnants of the Cimbrian army, but it is much more probable that they are the posterity of the German settlers introduced by the bishops of Trent. Be this as it may, it is certain that after the victory of Marius the Cimbri were no longer of much importance as antagonists of Rome.

CIMMERII, or Cimmerians, a nomadic people of antiquity who dwelt near the Palus Mæotis or Sea of Azoff, in the Tauric Chersonese or Crimea, and in the Asiatic Sarmatia or the country of the lower Volga. They are said to have desolated Asia Minor prior to the time of Homer; and in their second invasion they penetrated as far westward as Æolis and Ionia, captured Sardis the capital of Lydia in the reign of Ardys, and continued in possession till they were driven out of Asia by Alyattes, the grandson of that sovereign. The fears of the Ionians are commemorated in the elegiac fragments of Callinus.

The name Cimmerii is also given to a mythical people, represented by Homer as inhabiting a remote region of mist and darkness, but localized by later writers near Lake Avernus, or in the Tauric Chersonesus, or in Spain. Their country was fabled to be so gloomy, that the expression "Cimmerian darkness" became proverbial; and Homer, according to Plutarch, drew his images of hell and Pluto from the dismal region they inhabited.

CIMON, an Athenian statesman, was the son of Miltiades. His father died in disgrace, leaving the fine which had been imposed on him unpaid. After a time it was paid by Cimon, who, according to one account, also took his place in prison. Distinguished by military ability, by a gentle and agreeable temper, and by the most open-handed liberality, Cimon gradually rose to the front rank among his contemporaries. His victorious attack on the Persians, his ostracism, his request for leave to fight at Tanagra, and his recall on the motion of his rival Pericles are matters of history. (See GREECE.) He died while besieging Citium, 449 B.C.

CINCHONA, the generic name of a number of trees belonging to the Natural Order *Rubiaceæ*, but which, with a few allied genera, have been by some authorities established as a distinct order under the name *Cinchonaceæ*. Botanically the genus includes trees of varying size, some reaching an altitude of 80 feet and upwards, with evergreen leaves and deciduous stipules. The flowers are arranged in panicles, white or pinkish in color, with a pleasant odor, the calyx being five-toothed superior, and the corolla tubular, five-lobed, and fringed at the margin. The stamens are five, almost concealed by the tubular corolla, and the ovary terminates in a fleshy disk. The fruit is an ovoid or sub-cylindrical capsule, splitting from the base, and held together at the apex. The numerous seeds are flat and winged all round. According to the enumeration of Bentham and Hooker, thirty-six species have been distinguished, but of these not more than about a dozen have been economically utilized. The plants are natives of the western mountainous regions of South America, their geographical range extending from 10° N. to 22° S. lat.; and they flourish generally at an elevation of from 5,000 to 8,000 feet above sea level, although some have been noted growing as high up as 11,000 feet, and others have been found down to 2,600 feet.

The trees are valued solely on account of their bark, which as cinchona bark, Jesuits' bark, or Peruvian bark is, and long has been, the source of the most valuable tonic and febrifuge medicines that have ever been discovered. The earliest well-authenticated instance of the medicinal use of cinchona bark is found in the year 1638, when the countess of Chinchon, the wife of the governor of Peru, was cured of an attack of fever by its administration. The medicine was recommended in her case by the corregidor of Loxa, who was himself said to have practically experienced its supreme virtues eight years earlier. The name *Cinchona* is due to the connection of the countess of Chinchon with the introduction of the remedy; and it is argued by Mr. Markham and others that therefore the term should be written *Chinchona*. A knowledge of the virtues of the bark was disseminated throughout Europe by members of the Jesuit brotherhood, whence it also became generally known as Jesuits' bark. According to another account, this name arose from its value having been first discovered to a Jesuit missionary who, when prostrate with fever, was cured by the administration of the bark by a South American Indian.

The procuring of the bark in the dense forests of New Granada, Ecuador, Peru, and Bolivia is a work of great toil and hardship to the Indian *Cascarillo*s or *Cascadores* engaged in the pursuit. The trees grow isolated or in small clumps which have to be searched out by the experienced Cascarillero, who laboriously cuts his way through the dense forest to the spot where he discovers a tree. Having freed the stem from adhering parasites and twining plants, he proceeds, by beating and cutting oblong pieces, to detach the stem bark as far as is within his reach. The tree is then felled, and the entire bark of stem and branches secured. The bark of the smaller branches, as it dries, curls up, forming "quills," the thicker masses from the stems constituting the "flat" bark of commerce. The drying, packing, and transport of the bark are all operations of a laborious description conducted under most disadvantageous conditions. Notwithstanding this the annual value of the product is very great.

CINCINNATI, an important city of the United States, situated in the southwest part of Ohio, on the north bank of the Ohio river. It is the capital of Hamilton county, and in size is the first city in the State, while, according to the Federal census of 1890, it is the ninth in the United States. It was first settled in 1788 by persons from New Jersey, and it was said to have been named in honor of the Cincinnati Society of officers of the Revolutionary War. It was incorporated as a city in 1814, and soon acquired a commercial importance which has steadily increased. In 1800 Cincinnati contained but 750 inhabitants. The population amounted to 9,602 in 1820, 46,338 in 1840, 115,436 in 1850, 161,044 in 1860, and 296,908 in 1890. The city has a very large foreign population, the German element being strongly represented. The city is chiefly built upon two terraces or plateaus, the first sixty and the second 112 feet above the river. Beyond these rises an amphitheater of hills from 400 to 450 feet high, from which may be obtained a magnificent view of the valley of the Ohio and the surrounding country. On the opposite bank of the river, in the State of Kentucky, are Covington, which had 37,371 inhabitants in 1890, and Newport, which had 24,918. Communication between these cities and Cincinnati is afforded by five bridges and four steam ferries. The wire suspension bridge, which is 1,057 feet long between the towers (or, including the approaches, 2,252 feet), with a height of 100 feet above low water, was completed in 1867 at a cost of nearly \$2,000,000. It has a double wagon road, and

two ways for pedestrians. Further up the river is a wrought iron railroad bridge built upon piers; besides a railway track, it has wagon and foot ways.

Cincinnati covers an area of twenty-four square miles, extending along the river about ten miles, with an average width of three miles. The most important part of the city, however, is comprised within a distance of two and half miles along the river. The corporate limits have been much extended in recent years by the annexation of numerous villages, the most important being Columbia, Walnut Hills, Mount Auburn, and Cumminsville. In these, which still retain their former names, are seen the most costly residences and villas, with ornamental grounds embracing from five to eighty acres each. The city is also noted for the beauty of its suburbs and its surrounding scenery. The streets, which generally cross one another at right angles, are usually from one and one-half to two and one-half miles long, and from fifty to one hundred feet wide. Many of them are lined with trees. Brick is chiefly used for buildings, with a grayish buff freestone for fronts. Business buildings are usually five (often more) stories high. Cincinnati is well supplied with public parks, the largest of which, Eden, is situated on a hill in the eastern part of the city, and contains 216 acres. In Burnet Woods, acquired by purchase, there are 170 acres, mostly forest, on the hill north of the city. Centrally situated in the city are Washington, Lincoln, Hopkins, and the City parks, which together contain about twenty-five acres. One of the most attractive objects in the city is the Tyler Davidson bronze fountain which was unveiled in 1871. It was presented to the city by Mr. Henry Probasco, a wealthy citizen, who named it after the late Mr. Tyler Davidson, the originator of the proposal. Its cost was nearly \$200,000. The design embraces fifteen bronze figures, all cast at Munich, the chief one representing a female with outstretched arms, from whose fingers the water falls in fine spray. This is the surmounting figure, and reaches a height of forty-five feet above the ground.

Among the most notable public structures are the new government building, new City Hall, Armory, Art Museum, House of Refuge, the new Y. M. C. A. building and several fine structures devoted to club purposes. The County Court House is a fine structure, three stories high and 175 feet square, and has a porch with six Corinthian stone columns. The city workhouse, three and one-half miles from the heart of the city, is a brick structure 515 feet long and fifty-five feet wide, erected at a cost, including twenty-six acres of land, of \$650,000. It has room for 700 prisoners. The Cincinnati hospital, comprising eight buildings arranged around a central court and connected by corridors, occupies a square of four acres. It cost more than \$1,000,000, and will accommodate 700 patients. The Masonic Temple, built in the Byzantine style, 195 feet long and 100 feet wide, is four stories high, and has two towers 140 feet, and a spire 180 feet high. Other noticeable structures are the Public Library, St. Xavier's College, the Wesleyan Female College, and the Hughes High School. The most imposing church edifices are St. Peter's Roman Catholic Cathedral, built in pure Grecian style, 200 by 80 feet, with a stone spire rising to a height of 224 feet; St. Paul's Church (Methodist), with a spire 200 feet high; the First Presbyterian Church, with an immense tower surmounted by a spire 270 feet high; and two large and attractive Hebrew temples.

Cincinnati is one of the most important commercial and manufacturing centers of the West. There are twenty railroads entering the city. About 400 passenger and freight trains arrive and leave daily on these roads. For their use are four depots near the river in different parts of the city. Communication

with different parts of the city and with the suburbs is afforded by fourteen lines of street railroads, with about fifty miles of track, and by numerous lines of omnibuses and stages. The top of the adjacent hills is reached by four inclined steam passenger railways. The enterprise of the citizens of Cincinnati led some years ago to the construction by the city of the great Cincinnati Southern railroad, by means of which direct communication is had with the South. The position of the city on the Ohio River gives it water communication with the extensive river system of the Mississippi; while it is connected with Lake Erie by the Miami Canal, whose northern terminus is at Toledo, Ohio. The large steamers of the Mississippi river are enabled to reach Cincinnati by means of the canal around the falls of the Ohio at Louisville, Kentucky, which was opened in 1872. About three-fourths of the commerce of the city is by railroad and canal, and the remainder by river transportation.

Boat-building was formerly a prominent industry, but it has recently declined. Prior to 1863 Cincinnati was the chief center in the United States for the slaughtering of swine and the packing of pork. It has yielded its supremacy in this regard, but pork packing is still an important trade. There are more than thirty establishments employed in this industry. The leading commercial organization is the Chamber of Commerce and Merchants' Exchange, and holds daily sessions. The Board of Trade has about 900 members, chiefly manufacturers. There are also a mechanics' institute, cotton exchange, and pork packers' association. An industrial exhibition has been held on an average about once in two years since 1871, and has attracted large numbers of visitors to the city. The buildings are centrally situated, and occupy three and one-half acres of ground.

The city is divided into thirty wards, and is governed by a mayor, who is elected by the people for three years, and receives an annual salary of \$6,000, a board of thirty aldermen, and a board of sixty councilmen, who are also elected by the people. It has a paid fire department under the control of five commissioners appointed by the mayor, and a police force under the control of the mayor and four commissioners. The efficiency of these departments is promoted by extensive fire-alarm and police telegraphic lines. The city is supplied with water obtained by pumping from the Ohio River by means of three immense reservoirs, two of which, with a capacity of 100,000,000 gallons each, are in Eden Park. Beside the usual municipal and county courts, the United States circuit and district courts for the southern district of Ohio are held in the city.

Cincinnati has a large number and variety of well-organized charitable institutions. The Cincinnati hospital is supported by taxation, and affords free treatment to all unable to pay for it; the city infirmary, besides supporting pauper inmates, affords relief to outdoor poor; the Good Samaritan and St. Mary's hospitals are private institutions, under the supervision of Roman Catholic sisters; the Jewish hospital is maintained by persons of that faith. The Longview asylum for the insane, built at Carthage, 10 miles from the city, at a cost, including 110 acres of land, of \$1,000,000, ranks among the first institutions of the kind in the United States. It belongs to Hamilton County, whose population consists chiefly of the inhabitants of Cincinnati; patients are, however, sent here by the State, which contributes to its support. Besides the city orphan asylum, which has accommodation for 300 children, and is supported by private charity, and the German Protestant asylum, with a capacity for about 100, two large asylums are maintained by the Roman

Catholics and by the colored people. There are also several institutions for indigent and friendless women. The house of refuge and the city workhouse are maintained by the city for the confinement of persons convicted of minor offenses; children are sent to the former, and adults to the latter.

The public schools are under the control of a superintendent and a board of fifty elected members, and comprise three high, five intermediate, and forty district schools, including those for colored pupils. There are also a normal school for females and evening schools. In 1889 there were 750 teachers and 35,616 pupils enrolled, with an average daily attendance of 28,949. German is a prominent study in the public schools, and music and drawing are taught. The Woodward and the Hughes high schools have long been known for their excellence. Besides the above, there are a large number of Roman Catholic parochial schools. The university of Cincinnati, founded by means of a bequest made by Charles M'Micken, is designed to afford advanced and technical instruction free of charge. A school of design has been in operation since 1869. Beside the Cincinnati Wesleyan College for females (Methodist-Episcopal), St. Xavier College (Roman Catholic), and Mount St. Mary's of the West, the city has one law, six medical, and two theological schools, four commercial colleges, and two schools of music. One of the theological schools is connected with Mount St. Mary's of the West, the other is the widely-known Large Theological Seminary (Presbyterian), founded in 1829. It occupies a site of seven acres on Walnut Hill, and has five professors and a library of 12,000 volumes. Three of the medical schools are classified as regular, one as pharmaceutical, one as homœopathic, and one as dental. The oldest is the medical college of Ohio, which was opened in 1819, and now has ten instructors; the Cincinnati college of medicine and surgery was opened in 1821, and has fourteen instructors; the Miami medical college, opened in 1852, has twelve instructors; and the Pulte medical college, opened in 1872, has fourteen. There are eleven public libraries in the city, the largest being the free public library, which has 100,000 bound volumes and 6,500 pamphlets, and the Young Men's Mercantile with nearly 50,000 volumes. The public library occupies one of the best library buildings in the country.

CINCINNATI (the Cincinnatiates), a society or order in the United States of North America, established by the officers of the revolutionary army in 1783 "to perpetuate their friendship, and to raise a fund for relieving widows and orphans of those who had fallen during the war." It was so named because it included patriots, headed by Washington, who in many instances had left rural affairs to serve their country (see CINCINNATUS). The badge of the society is a bald eagle suspended by a dark-blue ribbon with white borders, symbolizing the union of France and America. On the breast of the eagle there is a figure of Cincinnati receiving the military ensigns from the senators, round the whole are words, *Omnia reliquit sequare rempublicam*.

CINCINNATUS, the hero of one of the early Roman legends, was born about 519 B.C. According to the story, he was ruined by the fine which was imposed on his son Cæso for the murder of a plebeian during the commotions caused by the introduction of a bill by Terentilius Arsa. This measure, which proposed the creation of a code of written laws applicable to plebeian and patrician alike, was also strongly opposed by Cincinnati himself. Cincinnati is, in fact, the type of the ancient patrician agriculturist. Twice he was called from the plough to the dictatorship of Rome.

On the first occasion his task was to save the army from the Æquians and Volscians, who had forced it into a position of imminent danger; and he is said to have raised an army and defeated the enemy within a single day (458). On his return he summoned Volscius, the accuser of his son, to take his trial on a charge of perjury; but Volscius fled from the city. On the second occasion (439) he was appointed by the patricians, in order to crush Spurius Mælius, who had spent his wealth in relieving the wretched debtors, and who was consequently accused of desiring popularity that he might seize the supreme authority. Mælius, refusing to appear before the dictator, was killed by Ahala, the master of the horse.

CINEAS, a Thessalian, the chief adviser of Pyrrhus, king of Epirus. The most famous event of his life was the visit which he made to Rome for the purpose of concluding the war, after the defeat of the Romans by Pyrrhus at Heraclea, (280 B.C.) He performed the feat of learning in one day the name of every man of importance in the city, and displayed besides the most marvellous tact and eloquence; but the effects of his persuasion being destroyed through the patriotic vehemence of the venerable Appius Claudius Cæcus, he returned to his master with the report that Rome was a temple, and its senate an assembly of kings. Cineas also served as an ambassador in Sicily. He is perhaps the Cineas referred to by Cicero as the author of a work *De Re Militari*.

CINNA, LUCIUS CORNELIUS, a Roman patrician, conspicuous in the contest between Marius and Sulla. After serving in the war with the Marsi as pretorian legate, he was elected consul in 87 B.C. Breaking the oath he had sworn to Sulla that he would not attempt any revolution in the state, Cinna allied himself with Marius, raised an army of Italians, and took possession of the city. Soon after his triumphant entry and the massacre of the friends of Sulla, by which he had satisfied his vengeance, Marius died. L. Valerius Flaccus became Cinna's colleague, and on the murder of Flaccus, Cn. Papirius Carbo. In 84, however, Cinna, who was still consul, was forced to advance against Sulla; but while embarking his troops he was killed in a mutiny. See ROMAN HISTORY.

CINNABAR, is the native sulphide of mercury, and the only commercial source of that metal and its compounds. It crystallizes in the rhombohedral form, in which condition it is sometimes found; but generally it occurs in fibrous or amorphous masses bedded in slate rocks and shales, and more rarely in veins in granitic or porphyritic rocks. In hardness it is intermediate between gypsum and calcspar; its specific gravity is 8.998, and its color varies from a fine bright red to a reddish-brown and leaden-gray hue. It possesses the same composition as the ordinary vermilion of commerce for which it may, when pure and fine in color, sometimes be used after simple levigation, although the greater part of that brilliant pigment is artificially prepared. Pure cinnabar should contain 86.21 per cent. of mercury, combined with 13.79 of sulphur; but in its native state the ore is frequently contaminated with oxide of iron, clay, and bituminous matter. The principal European localities for cinnabar are at Idria in Carniola, and at Almaden in Spain, whence the British demand is mainly supplied. It is also extensively worked at New Almaden and several other localities in California, in the southern part of Peru, and in Borneo, Japan, and China. See VERMILLION.

CINNAMON is the inner bark of *Cinnamomum Zeylanicum*, a small evergreen tree belonging to the Natural Order *Lauraceæ*. The leaves are large ovate-oblong in shape, and the flowers, which are arranged in

panicles, have a greenish color and a rather disagreeable odor. Cinnamon has been known from the most remote antiquity, and it was so highly prized among ancient nations that in very small quantities it was regarded as a present fit for monarchs and other great potentates. It is mentioned in Exod. xxx. 23, where Moses is commanded to use both sweet cinnamon (*Kinman*) and cassia. The Arab traders, by whom the trade in this and other Oriental spices was conducted in ancient times, surrounded the history and production of these precious and lucrative products with grotesque tales of mystery. It is contended by some that cinnamon was originally obtained from the promontory of Gardafui, while others lean to the opinion that it was brought from China, whence the chief portion of the closely allied cassia bark is still derived. Although as the produce of Ceylon, cinnamon did not come prominently into the market till the settlement of the Portuguese in the island, it is the opinion of the best authorities that the tree yielding it is indigenous, and certainly no other situation and climate have yet been found where the trees flourish so well and yield a bark so fine and so delicately aromatic.

The cinnamon gardens are confined to a strip of country in the neighborhood of Colombo. When the trade was at its best, five of the principal gardens measured from fifteen to twenty miles in circumference, but now the area of cultivation is very much restricted, and plants which were at one time tended with the greatest care, and guarded with inhuman jealousy, are choked with the natural profusion of jungle vegetation. The bark is taken from shoots of eighteen months or two years growth, in which time they attain a length of from six to ten feet, and a thickness of from one-half to two inches. The plants are managed on the coppice system, and only four or five shoots are allowed to grow up from each stool. The shoots are cut down twice a year after the rains, and the bark is detached in lengths of about a foot. After lying in bundles as taken from the shoots for about a day, each separate piece is carefully scraped to remove the outer and middle layers of the bark, and the remaining portion is thereby often reduced to the thickness of one-hundredth part of an inch. The pieces are then made up into composite quills by placing the smaller pieces inside the larger, and thus the cinnamon is often formed into straight firm rods of from three to four feet in length. After drying in the sun the bark is ready to make up in bundles for exportation.

Cinnamon of an inferior quality is grown in Southern India at Tellicherry and Tinnevely; and in Java the cultivation was introduced by the Dutch about the year 1825.

Ceylon cinnamon of fine quality is a very thin, smooth bark, with a light-yellowish brown color, a highly fragrant odor, and a peculiarly sweet, warm, and pleasing aromatic taste. Its peculiar flavor is due to an aromatic oil which it contains to the extent of from 0.5 to 1 per cent. The essential oil of cinnamon, as an article of commerce, is prepared chiefly in Ceylon, where the coarser pieces of bark are used for its extraction. These are roughly powdered and macerated in sea water for two days, when the whole is quickly distilled. The oil is of a golden-yellow color, with the peculiar odor of cinnamon and a very hot aromatic taste. It consists essentially of cinnamic aldehyde or the hydride of cinnamyl, and by the absorption of oxygen as it becomes old it darkens in color and develops resinous compounds with cinnamic acid.

Cinnamon is principally employed in cookery as a condiment and flavoring material, being largely used in the preparation of some kinds of chocolate and liquors. In medicine it acts as an aromatic stimulant and cordial;

but it is chiefly prescribed for improving the flavor of bitter substances and to correct the griping action of purgatives. Being a much more costly spice than cassia, that comparatively harsh-flavored substance is frequently substituted for or added to cinnamon. The two barks when whole are easily enough distinguished, and their microscopical characters are also quite distinct. When powdered bark is treated with tincture of iodine, little effect is visible in the case of pure cinnamon; but with cassia a deep-blue tint is produced, the intensity of the coloration depending on the proportion of the cassia.

CINO DA PISTOIA (1270-1336), a poet and jurist, whose full name was GUITTONCINO DE' SINIBULDI, was born in Pistoia, of a noble family. He studied law at Bologna under Dinus and Franciscus Accursius, and in 1307 is understood to have been assessor of civil causes in his native city.

Cino, the master of Bartolus, and of Joannes Andreæ, the celebrated canonist, was long famed as a jurist. His commentary on the statutes of Pistoia, written within two years, is said to have great merit; while that on the code is considered by Savigny to exhibit more practical intelligence and more originality of thought than are found in any commentary on Roman law since the time of Accursius. As a poet he also distinguished himself greatly. He was the friend and correspondent of Dante's later years, and possibly of his earlier also, and was certainly, with Guido Cavalcanti and Durante da Maiano, one of those who replied to the famous sonnet *A ciascun' alma presa e gentil core* of the *Vita Nuova*. The great Florentine in the treatise *De Vulgari Eloquio* refers to him as one of "those who have most sweetly and subtly written poems in modern Italian," but his works, printed at Rome in 1559, do not altogether justify the praise bestowed on them by his illustrious friend.

CINQ-MARS, HENRI COIFFIER DE RUZÉ MARQUIS DE, French courtier, was born in 1620. At the age of eighteen he was introduced to the court by Richelieu, who had been the patron of his father, and who intended him to fill the post of favorite to the king, Louis XIII. The design succeeded well, and Cinq-Mars became grand master of the wardrobe, and grand master of the horse. He developed into a gallant courtier, won the affection of the princess of Mantua, and claimed a seat in the royal council. But Richelieu opposed his ambition, and refused to countenance his pretensions. Cinq-Mars, therefore, in revenge, entered into the conspiracy against him, of which the duke of Orleans was nominal head. Unfortunately aid had been sought from Spain; and using this treason as an argument, Richelieu persuaded the weak and fickle king first to forbid Cinq-Mars to enter his presence, and then to permit his execution in 1642.

CINQUE PORTS. The Cinque Ports, or Five Ports, is the name of an ancient jurisdiction in the south of England, which is still maintained with considerable modifications and diminished authority. As the name implies, the original members of the body were only five in number—Hastings, Romney, Hythe, Dover, and Sandwich; but to these were afterwards added the "Ancient Towns" of Winchelsea and Rye with the same privileges, and a good many other places, both corporate and non-corporate, which, with the title of Limb or Member, held a subordinate position.

CINTRA, a town of Portugal in the province of Estremadura, fourteen miles northwest of Lisbon, with about 4,800 inhabitants.

CIPHER. See CRYPTOGRAPHY.

CIPRIANI, GIOVANNI BATTISTA, painter and draughtsman, was of Pistoian descent, but was born at Florence in 1727, and studied design and color under

Heckford and Gabbiani. After painting several pictures at Pistoia and elsewhere, Cipriani, who had contracted a friendship with Bartolozzi, the eminent engraver, quitted Florence for London. There he worked for the duke of Richmond and other noblemen and gentlemen, repaired the Rubens ceiling in Whitehall Chapel, and the Verrio frescoes at Windsor, and decorated in part the Royal Academy library. His drawings, which are better than his paintings, engraved by Bartolozzi and his pupils, achieved a wide popularity, and were bought up eagerly all over Europe. He died in 1785.

CIRCAR is an Indian term applied to the component parts of a *Subah* or province, each of which is administered by a deputy-governor. In English it is principally employed in the name of the Northern Circars, used to designate a now obsolete division of the Madras presidency, which consisted of a narrow slip of territory lying along the western side of the Bay of Bengal.

CIRCASSIA. The name of Circassia is commonly given to the whole of the northwestern portion of the Caucasus, including the district between the mountain range and the Black Sea, and extending to the north of the central ridge as far as the River Kuban. In this sense the term is still in use as a geographical appellation, though the Circassians, as a nation, may be regarded as extinct. The region thus defined may be considered as extending from the neighborhood of Anapa on the Black Sea to the frontiers of Mingrelia, and having a seaboard of about 280 English miles. Throughout this extent the country is almost wholly mountainous,—the great range of the Caucasus, which begins in the neighborhood of Anapa at a moderate elevation, rising gradually as it extends toward the southeast, till it culminates in the lofty summit of Mount Elbruz, at an elevation of 18,526 feet.

The Tcherkesses or Circassians, who gave name to this region, of which they were until lately the sole inhabitants, are a peculiar race, differing from the other tribes of the Caucasus in origin and language. They designate themselves by the name of Adighe, that of Tcherkesses being a term of Russian origin. By their long-continued struggles with the power of Russia, during a period of nearly forty years, they attracted the attention of the other nations of Europe in a high degree, and were at the same time an object of interest to the student of the history of civilization, from the strange mixture which their customs exhibited of chivalrous sentiment with savage customs.

In the patriarchal simplicity of their manners, the mental qualities with which they were endowed, the beauty of form and regularity of feature by which they were distinguished, they surpassed most of the other tribes of the Caucasus. At the same time they were remarkable for their warlike and intrepid character, their independence, their hospitality to strangers, and that love of country which they manifested in their determined resistance to an almost overwhelming power during the period of a long and desolating war. The government under which they lived was a peculiar form of the feudal system. The free Circassians were divided into three distinct ranks, the princes or *pschi*, the nobles or *uork* (Tartar *usden*), and the peasants or *hokotl*. Like the inhabitants of the other regions of the Caucasus, they were also divided into numerous families, tribes, or clans, some of which were very powerful, and carried on war against each other with great animosity. The slaves, of whom a large proportion were prisoners of war, were generally employed in the cultivation of the soil, or in the domestic service of some of the principal chiefs.

The education of the young Circassian was confined

to riding, fencing, shooting, hunting, and such exercises as were calculated to strengthen his frame, and prepare him for a life of active warfare. The only intellectual duty of the *atalik*, or instructor, with whom the young men lived until they had completed their education, was that of teaching them to express their thoughts shortly, quickly, and appropriately. One of their marriage ceremonies was very strange. The young man who had been approved by the parents, and had paid the stipulated price in money, horses, oxen, or sheep, for his bride, was expected to come with his friends fully armed, and to carry her off by force from her father's house. Every free Circassian had unlimited right over the lives of his wife and children.

Although polygamy was allowed by the laws of the Koran, the custom of the country forbade it, and the Circassians were generally faithful to the marriage bond. The respect for superior age was carried to such an extent, that the younger brother used to rise from his seat when the elder entered an apartment, and was silent when he spoke. Like all the other inhabitants of the Caucasus, the Circassians were distinguished for two very opposite qualities: the most generous hospitality, and implacable vindictiveness. Hospitality to the stranger was considered one of the most sacred duties. Whatever were his rank in life, all the members of the family rose to receive him on his entrance, and conduct him to the principal seat in the apartment. The host was considered responsible with his own life for the security of his guest, upon whom, even although his deadliest enemy, he would inflict no injury while under the protection of his roof. The chief who had received a stranger was also bound to grant him an escort of horse to conduct him in safety on his journey, and confide him to the protection of those nobles with whom he might be on friendly terms. The law of vengeance was no less binding on the Circassian. The individual who had slain any member of a family was pursued with implacable vengeance by the relatives, until his crime was expiated by death. The murderer might, indeed, secure his safety by the payment of a certain sum of money, or by carrying off from the house of his enemy a newly-born child, bringing it up as his own, and restoring it when its education was finished. In either case, the family of the slain individual might discontinue the pursuit of vengeance without any stain upon its honor. The man closely followed by his enemy, who, on reaching the dwelling of a woman, had merely touched her hand, was safe from all other pursuit so long as he remained under the protection of her roof. The opinions of the Circassians regarding theft resembled those of the ancient Spartans.

The early history of Circassia is exceedingly obscure. This part of the coasts of the Black Sea was inhabited in ancient times only by wild and barbarous tribes, whose names are very differently given by ancient writers. No Greek colonies were planted within the limits of Circassia proper, though the Greeks carried on an extensive trade with the nations of the interior at Dioscurias, near Sukhum Kaleh. In the twelfth and thirteenth centuries the princes of Georgia were successful in reducing Circassia into the condition of a province; and are said to have also been the first to introduce Christianity into the country—a religion which they continued to profess (in name at least) till the eighteenth century, when they were converted to Islamism by the teaching of a fanatical devotee named Mansur. The common people, however, retain to a great extent their pagan customs and beliefs. After they had succeeded in throwing off the Georgian yoke, the Circassians passed for a time under the rule of the Tartar khans of Crimea, from whom they

emancipated themselves, with the assistance of Ivan I., czar of Russia. But the Russian monarchs do not appear to have regarded their conquest as a matter of much importance, until the time of Peter the Great. That powerful monarch, perceiving how much the possession of the Caucasus would contribute to his political and commercial influence in Western and Central Asia, made an unsuccessful attempt to reduce it permanently under his dominion. Catherine II. pursued a similar line of policy. Georgia having been harassed by the successive invasions of the Persians and Turks, the prince of that country at last threw himself under the protection of the Russians, and became tributary to their power. The River Kouban being afterward fixed as the southern boundary of the Muscovite Empire, the Russians became ambitious of extending their dominion uninterruptedly to the extreme limits of Georgia. In the wars which now took place between the Russians and the Turks, the latter used every exertion, by exciting the fanatical feelings of the Circassians against the infidels, to induce them to harass the Russians by frequent incursions into their territory. After various vicissitudes of fortune, the Turks were worsted, and compelled by the treaty of Adrianople in 1829 to cede a considerable portion of their territory to the czar. Assuming a right of political sovereignty which they had never possessed, they included Circassia in this cession. The Circassians, refusing to acknowledge the right of the sultan (whom they had never recognized as their sovereign, though acknowledging him as head of their religion) thus to dispose of their country, were now exposed to the hostility of the Russians, who determined to become masters of the territory on the coasts of the Black Sea, and indeed of the whole Caucasian region, by force of arms. This was the origin of that remorseless war which was carried on with so much animosity down to a very recent period, and cost the Russians an incredible amount of blood and treasure.

After the Circassians were finally reduced to submission, the inhabitants of the sea-coast, rather than to submit to the regulations imposed by the Russian Government, determined to quit their country, and emigrate in a mass to Turkey. Not less than half a million of people carried out this resolution, and were settled in different parts of the Turkish empire,—the greater part of them in Asia Minor, but some also in the mountain country on the borders of Bulgaria and Servia. Since that period the whole tract along the sea-coast from Anapa to Sukhum Kaleh, which was that best known as Circassia, has been almost entirely destitute of inhabitants. But the northern slopes of the Caucasus, and the valleys descending towards the Kuban, are still occupied by tribes of Circassian race; and the Kabardans, a kindred tribe, but of less warlike character, extending eastwards to beyond the Terek, have long settled down quietly in the condition of Russian subjects.

CIRCE, in classical mythology, the daughter of Sol and Perse, or of Hyperion and Aërope, or, according to some, of Æetes, king of Colchis (whom others call her brother), was a famous sorceress. Having murdered her husband, the prince of Colchis, she was expelled by her subjects, and placed by her father on the solitary island of Ææa, on the coast of Italy. Here she was found by Ulysses and his companions; the latter she changed into swine, but the hero, protected by the herb *moly* which he had received from Mercury, not only forced her to restore them, but also gained her love. For a year he relinquished himself to her endearments; but at length he aroused himself, and after descending at her advice to the lower world, to consult the prophet Tiresias as to the fate which awaited him, he left her.

The metamorphoses by Circe of Scylla and of Picus, king of the Ausonians, are celebrated by Ovid.

CIRCEII, a town of ancient Italy, in Latium, at the foot of Mons Circeius, or Capo Circello, a short distance from the sea, and ten or twelve miles along the coast from Terracina. It was originally colonized by the Romans in the reign of Tarquin the Proud, who deemed the position favorable for commerce and for repressing the inroads of the Volsci. From its foundation till the date of the Latin War, 340 B.C., it seems at one time to have been subject to the Romans, at another to have espoused the cause of the Volsci, and sometimes to have been independent of both powers.

CIRCLEVILLE, the county seat of Pickaway county, Ohio, is situated on the Scioto river, at the junction of two railroads, twenty-five miles south of Columbus. It contains three national banks, twelve churches, a high school and a union school, and four newspapers. It derives its name from a circular mound of ancient construction. Population (1890), 8,000.

CIRCUIT, a law term, signifying the periodical progress of a legal tribunal for the sake of carrying out the administration of the law in the several divisions of a country.

CIRCUMCISION. The importance of this rite is so largely due to its quasi-sacramental character in Judaism, that any inquiry into its history and meaning must be prefaced by a reference to the Old Testament.

There are three distinct narratives in the sacred literature of the Jews which claim to be considered. It is related in Gen. xvii. that when Abram the Hebrew was ninety-nine years of age, he became a party on behalf of himself and his descendents to a covenant with his God. Of this covenant the sign and condition was circumcision, which was directed to be performed (a peculiarity of Judaism) on the eighth day after the child's birth. Is this account, we may ask, based on a historical tradition? If so, the circumcision of the Israelites is entirely unconnected with that of other nations unless indeed other nations have borrowed theirs from the Israelites. This has actually been maintained in the case of the Egyptians by Archdeacon Hardwicke, but the theory is not only improbable in itself, considering the imitative character of the Israelites, and their low reputation in Egypt (Gen. xli. 34), but contrary to the evidence of the Egyptian monuments. If, as has been supposed by some, the document to which Gen. xvii. belongs is of post-captivity origin, this would put it out of court as a witness to the popular tradition of the Hebrews. But there is another narrative, apparently of a more archaic complexion, which leads to a directly opposite historical result. We read in Exod. iv. 25, 26, that when Moses was returning from Midian to Egypt, he was in danger of his life, owing to the neglect of the rite of circumcision in his family. "And Zipporah," his Midianitish wife, "took a sharp stone, and cut off the foreskin of her son, and cast it at his feet, and said, Surely a *khathan* (Auth. Vers., 'husband') of blood art thou to me; so he (*sc.*, the offended deity) desisted from him. At that time she said, A *khathan* of blood, with reference to the circumcision." The meaning of this story can still be discerned. *Khathan*, or *khatan*, meant originally not "husband" (as Auth. Vers. of Exodus), nor "son-in-law" (as in ordinary Arabic), but "a newly admitted member of the family." This appears from the sense of Arab. *khatana*, "to provide a wedding-feast," and *khatana*, "to give or receive a daughter in marriage." So that in the sense of the old Hebrew tradition, "a *khathan* of blood" meant "one who has become a *khathan*, not by marriage, but by circumcision," a meaning which is still further confirmed by the de-

rived sense of Arab. *khatana* "to circumcise," circumcision being performed in Arabia at the age of puberty. To sum up:—an Arabian woman plays the chief part in the story, and her words are only explicable from the Arabic; it is also far from improbable that Yahweh (or Jehovah) was himself first made known to the Jews in Arabia (comp. Judg. v. 4, Hab. iii. 3); putting all which together, we obtain a strong case for the hypothesis of the Arabian origin of Jewish circumcision.

CIRCUS, in Roman Antiquity, was a building for the exhibition of horse and chariot racing. It consisted of tiers of seats running parallel with the sides of the course, and forming a crescent round one of the ends. The other end was straight and at right angles to the course, so that the plan of the whole had nearly the form of an ellipse cut in half at its vertical axis. Along the transverse axis ran a fence (*spina*) separating the return course from the starting one. The straight end had no seats, but was occupied by the stalls (*carceres*) where the chariots and horses were held in readiness. This end constituted also the front of the building with the main entrance. At each end of the course were conical pillars (*metæ*) to mark its limits.

The oldest building of this kind in Rome was the CIRCUS MAXIMUS, in the valley between the Palatine and Aventine hills, where previous to any permanent structure races appear to have been held beside the altar of the god Consus. The first building is assigned to Tarquin the younger, but for a long time little seems to have been done to complete its accommodation, since it is not till 329 B.C. that we hear of stalls being erected for the chariots and horses. It was not in fact till under the empire that the circus became a conspicuous public resort. Cæsar enlarged it to some extent, and also made a canal ten feet broad between the lowest tier of seats and the course as a precaution for the spectators' safety when exhibitions of fighting with wild beasts, such as were afterward confined to the amphitheater, took place. When these exhibitions were removed, and the canal (*euripus*) was no longer necessary, Nero filled it up. Augustus is said to have placed an obelisk between the *metæ* or goals, and to have built a new *pulvinar*, or state box; but if this is taken in connection with the fact that the circus had been partially destroyed by fire in 31 B.C., it may be supposed that besides this he had restored it altogether. Only the lower tiers of seats were of stone, the others being of wood, and this, from the liability to fire, may account for the frequent restorations to which it was subject; it would also explain the falling of the seats by which a crowd of people were killed in the time of Antoninus Pius.

In the reign of Claudius, apparently after a fire, the *carceres* of stone (*tufa*) were replaced by marble, and the *metæ* of wood by bronze gilt. Under Domitian, again, after a fire, the circus was rebuilt and the *carceres* increased to twelve instead of eight as before. The work was finished by Trajan. The number of people it could seat is given at 150,000 and at 250,000, the latter being supposed to be the more correct. This was the only public spectacle at which men and women were not assigned to separate places. The lower seats were reserved for persons of rank; the state box, *suggestus* or *cubiculum*, was midway in the range of seats. The principal object of attraction apart from the racing must have been the *spina* or low wall which ran down the middle of the course, with its obelisks, images, and ornamental shrines. On it also were seven figures of dolphins and seven oval objects, one of which was taken down at every round made in a race, so that spectators might see readily how the contest proceeded. The chariot race consisted of seven rounds of the course. The chariots started abreast, but in an oblique line, so

that the outer chariot might be compensated for the wider circle it had to make at the other end. Such a race was called a *missus*, and as many as twenty-four of these would take place in a day. The competitors wore different colors, originally white and red (*albata* and *russata*); afterwards the colors green (*prasina*) and blue (*veneta*) were added, and further, under Domitian, gold and purple, but these last two were not long retained. To provide the horses and large staff of attendants, it was necessary to apply to rich capitalists and owners of studs, and from this there grew up in time four select companies (*factiones*) of circus purveyors, which were identified with the four colors, and with which those who organized the races had to contract for the proper supply of horses and men. The drivers, who were mostly slaves, were sometimes held in high repute for their skill. The horses most valued were those of Sicily, Spain and Cappadocia. Chariots with two horses (*bigæ*) or four (*quadrigæ*) were most common, but sometimes also they had three (*trigæ*) and exceptionally more than four horses. Occasionally there was combined with the chariots a race of riders (*desultores*), each rider having two horses and leaping from one to the other during the race.

CIRENCESTER, or CICESTER, a parliamentary borough and market-town of England, in the county of Gloucester, sixteen miles southeast of the town of that name, and eighty-eight miles by road and ninety-five by the railway from London. Population, 8,000.

CIRILLO, DOMENICO (1734-1799), physician and patriot, was born at Grugno in the kingdom of Naples. Elected while yet a young man to the botanical chair left vacant by the death of Pedillo, Cirillo went some years afterwards to England, where he was made member of the Royal Society, and to France, where he became the friend of Buffon, Diderot, D'Alembert, and others of like mark. On his return to Naples he was appointed successively to the chairs of practical and theoretical medicine. He wrote voluminously and well on scientific subjects, and he secured an extensive medical practice. The entry into Naples of the French under Championnet, and the proclamation of the Parthenopean Republic (1799), brought to a conclusion his life of laborious and thoughtful benevolence. Cirillo was chosen a representative of the people; he then became a member of the Legislative Commission, and was elected its president. On the abandonment by the French of the young republic (June, 1799), cardinal-general Ruffo and the army of Ferdinand of Bourbon returned to Naples, and the republicans withdrew, ill-armed and inadequately provisioned, to the forts. After a short siege, in which an English squadron under Captain Foote bore a prominent part, they surrendered, on honorable terms. Life and liberty were guaranteed them by the signatures of Ruffo, of Foote, and of Micheroux, the Russian minister. But the arrival of Nelson changed the complexion of affairs; he refused to ratify the capitulation. Secure under the British flag, too, Ferdinand and Caroline of Austria showed themselves eager for revenge. The patriots were arrested; and Cirillo, who had tended the queen more than once, and whose skill had been employed on behalf of the English admiral himself, was thrown into prison with the others. A court was formed to try the captives, and Cirillo was brought before them. Neither his age, nor his fair life and fame, nor his heroic speech and bearing, availed with them, and he was condemned to death. Nelson attempted to save him, and Ferdinand consented to forego his vengeance if the republican would ask for mercy. He refused, and was hanged. Cirillo, whose favorite study was botany, and who was recognized as an entomologist by Linnæus, left many

books, in Latin and Italian, all of them treating of medical and scientific subjects, and all of little value now save as indications of the writer's fine qualities as a man of science and humanitarian. Exception must, however, be made in favor of the *Virtù Morali dell' Asino*, a pleasant philosophical opuscle remarkable for its double charm of sense and style.

CIRTA, an ancient city of Numidia, in Africa, in the country of Massyli. It was regarded by the Romans as the strongest position in Numidia, and was made by them the converging point of all their great military roads in that country. By the early emperors it was allowed to fall into decay, but was afterwards restored by Constantine, from whom it took its modern name. See CONSTANTINE.

CISALPINE REPUBLIC. After the battle of Lodi, in May, 1796, Bonaparte proceeded to organize two States—one on the south of the Po, the Cispadane Republic, and one on the north, the Transpadane. These two, however, were in 1797 united into one under the title of the Cisalpine Republic, which embraced Lombardy, Mantua, Bergamo, Brescia, Cremona, Verona, and Rovigo, the Duchy of Modena, the Principality of Massa and Carrara, and the three legations of Bologna, Ferrara, and the Romagna. The republic had a territory of more than 16,000 square miles and a population of 3,500,000. Milan was the seat of the Government or Directory until the extinguishment of the short-lived republic.

CIS-SUTLEJ STATES. This term has for many years been obsolete, as inapplicable to modern territorial arrangements. It came into use in 1809, when the Sikh chiefs south of the Sutlej (Satlaj) passed under British protection, and was generally applied to the country south of the Sutlej and north of the Delhi territory, bounded on the E. by the Himálayas, and on the W. by Soisá District.

CISTERCIANS, a religious order of the rule of St. Benedict, founded in 1098, by St. Robert, abbot of Molesme. It was so named from its original convent in the forest of Cîteaux (Cistercium), about fourteen miles northeast of Beaune. This order became so powerful that it governed almost all Europe both in temporal and spiritual concerns, and through the exertions of St. Bernard of Clairvaux had increased so rapidly in power, that within a century from its foundation it embraced 800 rich abbeys in different countries of Europe. The abbeys of La Ferté, Pontigny, Clairvaux, and Morimond were offshoots of that of Cîteaux, and produced in their turn a great number of separate communities, all which continued under the superintendence of the abbey of Cîteaux. The abbey of Morimond alone possessed 700 benefices; and its supremacy was acknowledged by the military orders of Calatrava, Alcantara, and Montesa in Spain, and by those of Christ and of Avis in Portugal. But the most famous of all the communities of this order was that of Clairvaux, founded in 1115 by St. Bernard (see BERNARD).

The Cistercians were involved in the general fate of the religious orders during the period of the French Revolution of 1789, and were reduced to a few convents in Spain, Poland, Austria, and the Saxon part of Upper Lusatia.

The habit of the order is a white robe or cassack, with a black scapulary and a woolen girdle. The nuns wear a white tunic and a black scapulary and girdle.

CITEAUX, or CISTEAUX, a village in France, in the department of Côte d'Or, about seven miles east of the town of Nuits, and twelve from Dijon. It is celebrated for the great abbey founded by Robert de Molesme in 1098, which became the headquarters of the Cistercian order (see last article). The buildings are now occu-

pied as a reformatory for juvenile criminals, and in the neighborhood is an extensive agricultural college.

CITHÆRON, or as it is now called from its pine forests, ELATEA, a famous mountain, or rather mountain range, in the south of Bœotia, separating that state from Megaris and Attica.

CITIZEN (Fr. *citoyen*, Lat. *civis*). Aristotle defines a citizen to be one to whom belongs the right of taking part both in the deliberative or legislative, and in the judicial proceedings of the community of which he is a member. All persons born or naturalized within the United States are citizens of the United States and of the State in which they reside. Indians who have retained their tribal relations are not citizens. Children born of American parents temporarily residing abroad or employed abroad in the service of the country have the same rights as if born within the limits of the United States.

CITRIC ACID, a tetrahydric tribasic acid, first prepared in the solid state by Scheele, in 1784, from the juice of lemons, in which it exists in large quantity. It is present also in oranges, citrons, currants, gooseberries, and many other fruits, and in several bulbs and tubers. It is made on a large scale from lime or lemon juice, chiefly in the months of November and December. The juice is fermented for some time to free it from mucilage, then boiled and filtered, and neutralized with powdered chalk and a little milk of lime; the precipitate of calcium citrate so obtained is decomposed with dilute sulphuric acid, and the resulting solution of citric acid is separated by filtration, evaporated to remove calcium sulphate, and concentrated.

Citric acid has an agreeable sour taste. It is soluble in three-fourths of its weight of cold, and in half its weight of boiling water, and dissolves in alcohol, but not in ether.

Citric acid is used in calico printing, also in the preparation of effervescing draughts, and occasionally as a refrigerant and antiscorbutic, instead of fresh lemon juice, to which, however, it is therapeutically inferior. In the form of lime juice it has long been known as an antidote for scurvy, and several of the citrates are much employed as medicines.

CITRON, a species of *Citrus* (*C. medica*, Risso), belonging to the Natural Order *Aurantiaceæ*, which furnishes also the orange, lime, and shaddock. The citron-tree is an evergreen growing to a height of about eight feet; it has long, pendent, and, in the wild varieties, spiny branches, pale-green, oblong, and sub-serate leaves, and flowers purple without and white within. The fruit is ovate or oblong, protuberant at the tip, and from five to six inches long, with a rough, furrowed, adherent rind, the inner portion of which is thick, white, and fleshy, the outer, thin, greenish-yellow, and very fragrant. The pulp is sub-acid and edible, and its seeds are bitter. There are many varieties of the fruit, some of them of great weight and size. The Madras citron has the form of an oblate sphere; and in the "fingered citron" of China, the lobes are separated into finger-like divisions.

The citron-tree thrives in the open air in China, Persia, the West Indies, Madeira, Sicily, Corsica, and the warmer parts of Spain and Italy; and in conservatories it is often to be seen in more northerly regions. It was described by Theophrastus as growing in Media; it appears, however, not to be indigenous to Persia, but to have been introduced into that country and other lands from North India, where it was found growing wild by Dr. Royle. It was early known to the ancients, and the fruit was held in great esteem by them; but they seem to have been acquainted with no other member of

the *Aurantiaceæ*, the introduction of oranges and lemons into the countries of the Mediterranean being due to the Arabs, between the tenth and fifteenth centuries. The rind of the citron yields two perfumes, *oil of cedra* and *oil of citron*, isomeric with oil of turpentine; and when preserved it is much esteemed as a sweetmeat.

CITTÀ DELLA PIEVE, a town of Italy, in the province of Umbria and district of Orvieto, about six miles from the station of Chiusi on the railway between Siena and Rome. Population, 6,500.

CITTÀ DI CASTELLO, a town of Italy, pleasantly situated on the left bank of the Tiber, in the province of Perugia, twenty-five miles N. by W. from the town of that name. Population (1889), 6,100.

CITTÀ VECCHIA, OR CITTÀ NOTABILE, a fortified city of Malta, situated about six miles west of Valletta on high ground which affords a view of a large part of the island. Population, 7,000.

CITY. This word, derived through the French *citê* from the Latin *civitas*, is used in England with considerable laxity as little more than a synonym for town; while at the same time there is a kind of traditional feeling of dignity connected with it. In the United States, where the ecclesiastical distinction does not exist, the application of the term depends on the kind and extent of the municipal privileges possessed by the corporations, and charters are given raising from the rank of town to that of city.

CIUDAD BOLIVAR. See ANGOSTURA.

CIUDAD DE LAS CASAS, a Mexican town of 12,000 inhabitants, situated in the State of Chiapas.

CIUDAD REAL, the chief town formerly of La Mancha, and now of the province of Ciudad Real, in Spain, ninety-seven miles south from Madrid, on a plain between the Jabalon and Guadiana. Population, 9,000.

CIUDAD REAL, the chief town of the state of Chiapas in Mexico, otherwise known as SAN CRISTOBAL (*q. v.*)

CIUDAD RODRIGO, a town of Spain, on the Agueda, in the province of Salamanca, near the frontier of Portugal. During the Peninsular war the town was taken by Marshal Masséna in 1810, and in 1812 by the duke of Wellington, who received from the Cortes the title of duke of Ciudad Rodrigo. Population, 5,700.

CIUDAD VICTORIA, a Mexican town in the State of Tamaulipas. Pop. 7,000.

CIUDADELA, a city, formerly the capital of Minorca, at the head of a deep and narrow bay on its west coast, twenty-five miles northwest of Mahon. It is surrounded by walls, and has a fine Gothic church. Population upwards of 5,000.

CIVET (*Viverra*), a genus of Carnivorous Mammals forming with the genet and ichneumon the family *Viverridæ*, and characterized by the possession of a deep pouch situated in the neighborhood of the genital organs (divided into two sacs, each about the size of an almond), into which the substance known as civet is poured from the glandular follicles secreting it. This fatty substance is at first semi-fluid and of a yellow color, but afterwards acquires the consistency of pomade and becomes darker. It has a strong musky odor, exceedingly disagreeable to those unaccustomed to it, but "when properly diluted and combined with other scents it produces a very pleasing effect, and possesses a much more floral fragrance than musk; indeed it would be impossible to imitate some flowers without it." There are three species of civet-producing *Viverridæ*. The Civet (*Viverra civetta*) is a native of North Africa, and extends as far south and west as Fernando Po. It is from two to three feet in length, exclusive of the tail, which is half the length of the body, and stands from

ten to twelve inches high. It is covered with long hair, that on the middle line of the back being longest and capable of being raised or depressed at will, of a dark-gray color, with numerous transverse black bands and spots. It is chiefly nocturnal, and is by preference carnivorous, feeding on birds and the smaller quadrupeds, in pursuit of which it climbs trees, but it is said also to eat fruits, roots, and other vegetable matters.

CIVIDALE, or more precisely, **CIVIDALE DEL FRIULI**, a town of Italy, in the province of Udine, on the right bank of the Natisone. Population, 8,200.

CIVIL LAW. This phrase, and its Latin equivalent *jus civile*, have been used in a great variety of meanings. *Jus civile* was sometimes used to distinguish that portion of the Roman law which was the proper or ancient law of the city or state of Rome from the *jus gentium*, or the law common to all the nations comprising the Roman world, which was incorporated with the former through the agency of the prætorian edicts.

CIVIL LIST, the amount voted in Great Britain for the support of the Crown. It amounts to about \$2,000,000 per annum.

CIVIL RIGHTS, the rights of an individual as a member of a community, guaranteed to him by the constitution and the amendments thereto.

CIVIL SERVICE, a general name for all duties, aside from those relating to naval and military service, rendered to and paid for by the general government. The reform of that service has been sought for many years, and legislation has been adopted with the ostensible object of securing at least a modification of the evils which have crept into the system. Under President Grant a commission was appointed to prepare rules regulating the admission to the civil service, and so far as some of the subordinate positions are concerned, these rules have been adopted and are in operation to a certain extent.

CIVILIZATION. This is a general term to designate the condition of the more advanced nations, as contrasted with those that are looked upon as barbarians or savages. We term our country and the leading nations of Europe civilized; the Chinese and Tartars less so; the Red Indians, Australians, Esquimaux least of all.

CIVITA CASTELLANA, a town of Italy, in the province of Rome, seventeen miles east-southeast of Viterbo, situated on a volcanic plateau surrounded on all sides but one by deep ravines which send down their streamlets to the Tiber. Population, 4,000.

CIVITA DI PENNE, an Episcopal town of Italy, at the head of a district in the province of Abruzzo Ulteriore, nineteen miles west of Pescara. Population, 9,800.

CIVITA VECCHIA, a maritime city and port of the Roman territory, which gives its name to a "delegation," or province. It is the best and almost the only port on the coast of the former territories of the church, and is about twenty-four miles to the west of Rome.

CLACKMANNAN, a county of Scotland on the north bank of the River Forth, is bounded on the southwest by the Forth, west by Stirlingshire, north and northwest by Perthshire, and a detached portion of Stirling, east by Fife, and northeast by a detached portion of Perth. It is the smallest county in the United Kingdom, is irregular in form, and occupies an area of forty-seven and one-half square miles, or 30,477 acres.

CLAIR, St., a river; that part of the St. Lawrence, in its largest sense, which carries into Lake St. Clair the waters of Lake Huron. It is thirty miles long, and one-half mile broad, and easily navigable, its depth being fifty feet. Lake St. Clair measures thirty miles in length by twelve in average width, and communicates at its southwest end with Lake Erie by means of the Detroit river.

CLAIRAULT, or **CLAIRAUT**, **ALEXIS-CLAUDE**, a French mathematician, was born on May 7th, 1713, at Paris, where his father was a teacher of mathematics. Under his father's tuition he made so rapid progress in mathematical studies, that in his thirteenth year he read before the French Academy an account of the properties of four curves which he had then discovered. When only sixteen, he finished his treatise on *Curves of Double Curvature*, which, on its publication two years later, procured his admission into the Academy of Sciences, although even then he was below the legal age. In 1736, together with his friend Maupertuis, he took part in the famous expedition to Lapland, which was undertaken for the purpose of estimating a degree of the meridian, and on his return he published his treatise *Sur la figure de la terre*. In his work on this subject he promulgated his theorem in regard to the variation of gravity, which has been corrected by Sir G. Airy. He obtained an ingenious approximate solution of the problem of the three bodies; in 1750 he gained the prize of the St. Petersburg Academy for his treatise on the Lunar Theory; and in 1759 he calculated the perihelion of Halley's comet. Clairault died at Paris, May 17th, 1765.

CLAMECY, a town of France at the head of an arrondissement, in the department of Nièvre, at the confluence of the Yonne and Beuvron, thirty-eight miles N.N.E. of Nevers.

CLAN. The Goidelic word *cland* or *clann* (in Welsh, *plant*), signifies seed, and in a general sense children, descendants. In the latter sense it was used as one of the terms to designate groups of kindred in the tribal system of government which existed in Ireland and the Highlands of Scotland. Through the latter country the word passed into the English language, first in a special sense of the Highland clan, afterward as a general name for a tribe or group of kinsmen. The results of inquiries into the tenure of land in different countries and the ancient laws and institutions of Aryan nations, and the publication of various Celtic documents, particularly the ancient laws of Ireland and Wales, have thrown much light on the constitution of the clan system, and given to it a wider and more important interest than it had hitherto possessed.

Before the use of surnames and elaborate written genealogies, a tribe in its definite sense was called a *tuath*, a word of wide affinities, from a root *tu*, to grow, to multiply, existing in all European languages. When the tribal system began to be broken up by conquest and by the rise of towns and of territorial government, the use of a common surname furnished a new bond for keeping up a connection between kindred. The head of a tribe or smaller group of kindred selected some ancestor and called himself his *Ua*, grandson, or as it has been anglicized *O'*, e.g., *Ua Conchobair* (O' Connor), *Ua Suilleabhain* (O' Sullivan). All his kindred adopted the same name, the chief using no fore-name however. The usual mode of distinguishing a person before the introduction of surnames was to name his father and grandfather, e.g., Owen, son of Donal, son of Dermot. This naturally led some to form their surnames with *Mac*, son, instead of *Ua*, grandson, e.g., *Mac Carthaigh*, son of *Carthach* (Mac Carthy), *Mac Ruaidhri*, son of Rory (Macrory). Both methods have been followed in Ireland, but in Scotland *Mac* came to be exclusively used. The adoption of such genealogical surnames fostered the notion that all who bore the same surname were kinsmen, and hence the genealogical term *clann*, which properly means the descendants of some progenitor, gradually became synonymous with *tuath*, tribe. Like all purely genealogical terms, *clann* may be used in the limited sense of a particular tribe governed by a chief, or in that of many tribes claiming de-

scent from a common ancestor. In the latter sense it was synonymous with *síl*, *siol*, seed, *e.g.*, *Siol Alpine*, a great clan which included the smaller clans of the Macgregors, Grants, Mackinnons, Macnabs, Macphies, Macquarries, and Macaulays.

The clan system in the most archaic form of which we have any definite information can be best studied in the Irish *tuath*, or tribe. They consisted of two classes:—(1) tribesmen, and (2) a miscellaneous class of slaves, criminals, strangers, and their descendants. The first included tribesmen by blood in the male line, including all illegitimate children acknowledged by their fathers, and tribesmen by adoption or sons of tribeswomen by strangers, foster-sons, men who had done some signal service to the tribe, and lastly the descendants of the second class after a certain number of generations. Each *tuath* had a chief called a *ríg*, king, a word cognate with the Gaulish *ríg-s* or *rix*, the Latin *reg-s* or *rex*, and the Old Norse *rik-ir*. The tribesmen formed a number of communities, each of which, like the tribe itself, consisted of a head, *ceann fine*, his kinsmen, slaves, and other retainers. This was the *fine*, or sept. Each of these occupied a certain part of the tribe-land, the arable part being cultivated under a system of co-tillage, the pasture land co-grazed according to certain customs, and the wood, bogs, and mountains forming the march-land of the sept being the unrestricted common land of the sept. The sept was in fact a village community like the Russian *mir*, or rather like the German *gemeinde* and Swiss *almend*, which Sir H. S. Maine, M. de Laveleye, and others have shown to have preceded in every European country the existing order of things as respects ownership of land. So long as there was abundance of land each family grazed its cattle upon the tribe-land without restriction; unequal increase of wealth and growth of population naturally led to its limitation, each head of a homestead being entitled to graze an amount of stock in proportion to his wealth, the size of his homestead, and his acquired position. The arable land was no doubt apportioned annually at first; gradually, however, some of the richer families of the tribes succeeded in evading this exchange of allotments and converting part of the common land into an estate in severalty. Septs were at first colonies of the tribe which settled on the march-land; afterward the conversion of part of the common land into an estate in severalty enabled the family that acquired it to become the parent of a new sept. The same process might, however, take place within a sept without dividing it; in other words, several members of the sept might hold part of the land of the sept as separate estate.

The possession of land in severalty introduced an important distinction into the tribal system—it created an aristocracy. An *aire* whose family held the same land for three generations was called a *flaith*, or lord, of which rank there were several grades according to their wealth in land and chattels. The *aires* whose wealth consisted in cattle only were called *bó-aires* or cow-*aires*, of whom there were also several grades depending on their wealth in stock. When a *bó-aire* had twice the wealth of the lowest class of *flaith* he might enclose part of the land adjoining his house as a lawn; this was the first step towards his becoming a *flaith*. The relations which subsisted between the *flaiths* and the *bó-aires* formed the most curious part of the Celtic tribal system, and throw a flood of light on the origin of the feudal system. Every tribesman without exception owed *ceilsinne* to the *ríg*, or chief, that is, he was bound to become his *ceile*, or vassal. This consisted in paying the *ríg* a tribute in kind, for which the *ceile* was entitled to receive a proportionate amount

of stock without having to give any bond for their return, giving him service, *e.g.*, in building his *dun*, or stronghold, reaping his harvest, keeping his roads clean and in repair, killing wolves, and especially service in the field, and doing him homage three times while seated every time he made his return of tribute. Paying the “*calpe*” to the Highland chiefs represented this kind of vassalage, a *colpdach* or heifer being in many cases the amount of food-rent paid by a free or *saer ceile*. A tribesman might, however, if he pleased, pay a higher rent on receiving more stock together with certain other chattels for which no rent was chargeable. In this case he entered into a contract, and was therefore a bond or *daer ceile*. No one need have accepted stock on these terms, nor could he do so without the consent of his sept, and he might free himself at any time from his obligation by returning what he had received, and the rent due thereon.

What every one was bound to do to his *ríg*, or chief, he might do voluntarily to the *flaith* of his sept, to any *flaith* of the tribe, or even one of another tribe. He might also become a bond *ceile*. In either case he might renounce his ceileship by returning a greater or lesser amount of stock than what he had received according to the circumstances under which he terminated his vassalage. In cases of disputed succession to the chiefship of a tribe the rival claimants were always anxious to get as many as possible to become their vassals. Hence the anxiety of minor chieftains, in later times in the Highlands of Scotland, to induce the clansmen to pay the “*calpe*” where there happened to be a doubt as to who was entitled to be chief.

Under the influence of feudal ideas and the growth of the modern views as to ownership of land, the chiefs and other lords of clans claimed in modern times the right of bestowing the tribe-land as *turcree*, instead of stock, and receiving rent not for cattle and other chattels as in former times, but proportionate to the extent of land given to them. The *turcree*-land seems to have been at first given upon the same terms as *turcree*-stock, but gradually a system of short leases grew up; sometimes, too, it was given on mortgage. In the Highlands of Scotland *ceiles* who received *turcree*-land were called “*taksmen*.” On the death of the chief or lord, his successor either bestowed the land upon the same person or gave it to some other relative. In this way in each generation new families came into possession of land, and others sank into the mass of mere tribesmen. Sometimes a “*taksman*” succeeded in acquiring his land in perpetuity, by gift, marriage, or purchase, or even by the “strong hand.” The universal prevalence of exchangeable allotments, or the rundale system, shows that down to even comparatively modern times some of the land was still recognized as the property of the tribe, and was cultivated in village communities.

The chief governed the clan by the aid of a council called the *sabaid* (*sab*, a prop), but the chief exercised much power, especially over the miscellaneous body of non-tribesmen who lived on his own estate. This power seems to have extended to life and death. Several of the *flaiths*, perhaps, all heads of septs, also possessed somewhat extensive powers of the same kind.

The Celtic dress, at least in the Middle Ages, consisted of a kind of shirt reaching to a little below the knees called a *lenn*, a jacket called an *inar*, and a garment called a *brat*, consisting of a single piece of cloth. This was apparently the garb of the *aires*, who appear to have been further distinguished by the number of colors in their dress, for we are told that while a slave had clothes of one color, a *ríg tuatha*, or chief of a tribe, had five, and an *ollamh* and a superior king, six. The breeches were also known, and cloaks with a cowl

or hood, which buttoned up tight in front. The *lenn* is the modern kilt, and the *brat* the plaid, so that the dress of the Irish and Welsh in former times was the same as that of the Scottish Highlander.

By the abolition of the heritable jurisdiction of the Highland chiefs, and the general disarmament of the clans by the Acts passed in 1747 after the rebellion of 1745, the clan system was practically broken up, though its influence still lingers in the more remote districts. An Act was also passed in 1747 forbidding the use of the Highland garb; but the injustice and impolicy of such a law being generally felt it was afterwards repealed.

CLAPARÈDE, JEAN LOUIS RENÉ ANTOINE ÉDOUARD, an eminent naturalist, was born at Geneva, April 24, 1832, and belonged to an ancient family of that city. His father was pastor of the parish of Chancy, and Édouard's early years were spent in that village. After a distinguished course at the classical college, the gymnasium, and the academy of his native city, he repaired in 1852 to the University of Berlin, and there devoted himself with self-sacrificing ardor to the study of medicine and the natural sciences and the acquisition of the Germanic languages of Northern Europe. The direction of his investigations was greatly affected by J. Müller and Ehrenberg, the former of whom was at that period engaged in his important researches about the Echinoderms. In 1855 he accompanied Müller to Norway, and there spent two months on a desolate reef that he might obtain satisfactory observations. The latter part of his stay at Berlin he devoted, along with Lachmann, to the study of the Infusoria and Rhizopods; and their united labors resulted in an important publication which at once gave them rank among the chief zoologists of the day. In 1857 he obtained the degree of doctor, and soon after he was chosen professor of comparative anatomy in the Academy of Geneva. Here he continued to teach with ever growing acceptance; and he even became a favorite of the general public through his popular lectures.

In 1859 he visited England, and, in company with Dr. Carpenter, took a voyage to the Hebrides; and in 1863 he spent some months in the Bay of Biscay. On the appearance of Darwin's work on the *Origin of Species*, he adopted his theories and published a valuable series of articles on the subject in the *Revue Germanique*, 1861. His enormous activity might seem to indicate vigorous health; but he was a martyr from the year 1854 to a painful affection of the heart, which caused excessive palpitations, frequently accompanied by spitting of blood. During 1865 and 1866 he was quite incapable of work, and he determined to pass the winter of 1866-7 in Naples. The change of climate produced some amelioration, and the patient's indomitable energy was attested by two elaborate volumes on the Annelidæ of the Gulf. He again visited Naples with advantage in 1868; but in 1870, instead of recovering as before, he grew worse, dropsy set in, and on the 31st of May he died at Siena on his way home.

CLAPPERTON, HUGH, an African traveler, was born in 1788 at Annan, Dumfriesshire, where his father was a surgeon. In his youth he gained some knowledge of practical mathematics and navigation; and while still very young he was apprenticed on board a vessel which traded between Liverpool and North America. After having made several voyages across the Atlantic, he was impressed for the navy, in which, having a little influence and much intelligence and physical vigor, he soon rose to the rank of midshipman. He acted as drill sergeant in the "Asia," the flag-ship of Vice-Admiral Cochrane, and was promoted to the rank of lieutenant, and to the command of a schooner on the Canadian

lakes. In the year 1817, when the flotilla on the lakes was dismantled, he returned to his native country on half-pay.

In 1820 Clapperton removed to Edinburgh, where he contracted an intimacy with Dr. Oudney, who first awoke his interest in the cause in which both were destined to perish. After the return of Captain Lyon, the British Government having determined on equipping a second expedition for the purpose of exploring Northern Africa, Dr. Oudney was appointed to proceed to Bornu as consul, and Clapperton and Colonel Denham were added to the party. From Tripoli, early in 1822, they set out southward to Murzuk, and from this point Clapperton and Oudney traveled westward into the country of the Tuaricks, as far as Ghraat, 11° E. long. On the 17th February, 1823, they reached Kouka, the capital of Bornu, where they were well received by the sultan; and after remaining here till the 14th December they again set out for the purpose of exploring the course of the Niger. They arrived in safety at Murmur, where Oudney breathed his last in the arms of his companion. Clapperton, however, penetrated alone as far as Sackatu, where he was obliged to stop, though the Niger was only five days' journey to the west. Worn out with travel he returned to Kouka, where he again met Denham. The two travelers then set out for Tripoli, and thence proceeded to England, where they arrived on June 1, 1825.

Immediately after his return Clapperton was raised to the rank of commander, and sent out with another expedition to Africa. He set sail in August, 1825, in company with Captain Pearce, Mr. Dickson, Dr. Morrison, and Richard Lander, who acted as his servant. On this occasion he landed at Badagry in the Bight of Benin, and immediately commenced his journey into the interior, along with Lander, Captain Pearce, and Dr. Morrison. The last two soon fell victims to the hardships of the journey; but in January, 1826, Clapperton reached Katunga, the capital of Yariba, and soon afterward crossed the Niger at Broussa, the spot where Mungo Park met his untimely fate. In July he arrived at Kano, a city which he had previously visited. Here he left the servant with his baggage, and proceeded alone to Sackatu, intending to proceed to Timbuctu. The Sultan however, detained him, and being seized with dysentery he died at Sackatu on the 13th of April, 1827.

CLIQUE (from Fr. *claquer*, to clap the hands, or applaud) is the name given to a contrivance sometimes resorted to in Europe for securing the success of a public performance or production, by bestowing on it preconcerted applause, and thus giving the public, who are not in the secret, a false notion of the impression it has made. It was in Paris that it was first regularly organized and turned into a trade. One Sauton, in 1820, established an Office for the Insurance of Dramatic Success (*Assurance des Succès Dramatiques*), and was thus the organizer of the Parisian "clique."

CLARE, a maritime county in the southwest of Ireland, in the province of Munster, bounded on the north-west by the Atlantic, south by the estuary of the Shannon, southeast and northeast by Limerick, Tipperary, Lough Dearg, and Galway, having an area of 1,293 square miles, or 827,994 acres, and a population of 140,000.

There are upward of one hundred lakes and tarns in the county, of which the largest are Loughs O'Grady, Graneg, Tedane, Incliquin, Inniscronan, and Clonlea; but they are more remarkable for picturesque beauty than size or utility, with the exception of the extensive and navigable Lough Dearg, formed by the River Shannon, between this county and Tipperary.

There are no extensive manufactures in the county of Clare, although flannels and friezes are made for home use, and hosiery of various kinds, chiefly coarse and strong, is made around Corofin, Ennistymon, and other places.

The county abounds with remains of antiquities, both military and ecclesiastical. There still exist above a hundred fortified castles, several of which are inhabited. They are mostly of small extent, a large portion being fortified dwellings. The chief of them is Bunvatty Castle, built in 1277. Rath or Danish forts are to be found in every part. They are generally circular, composed either of large stones without mortar, or of earth thrown up and surrounded by one or more ditches. The list of abbeys and other religious houses formerly flourishing here (some now only known by name, but many of them surviving in ruins) comprehends upwards of twenty. The most remarkable are: Quin, considered one of the finest and most perfect specimens of ancient monastic architecture in Ireland; Corcomroe; Ennis, in which is a very fine window of uncommonly elegant workmanship; and those on Enniscattery, or Scattery Island in the Shannon, said to have been founded by St. Senanus. On the same island there is a round tower, and also the ruins of what are called the seven churches. It is called Holy Island, and is still one of the most popular burial-places in the county.

CLARE, JOHN (1793-1864), commonly known as "the Northamptonshire Peasant Poet," was the son of a farm laborer, and was born at Helpstone, near Peterborough, on July 13, 1793. At the age of seven he was taken from school to tend sheep and geese; five years after he wrought on a farm, paying with his own meager savings for the education he received in the evening. He endeavored to enter a lawyer's office but failed, studied algebra, and fell in love, became a pot-boy in a public-house, and subsequently was apprenticed to a gardener, from which employment he ran away. Among the neighbors his manners and habits made an unfavorable impression. He enlisted in the militia, tried camp life with gypsies, and wrought as a lime burner in 1817, but the following year he was obliged to accept parish relief. In 1820 appeared his *Poems Descriptive of Rural Life and Scenery*, which were very indulgently received, and the year following his *Village Minstrel and other Poems* were published. He was greatly patronized; fame, with many curious visitors, broke the tenor of his life, and dangerous habits were formed. From subscriptions he became possessed of £45 annually, a sum far beyond what he had ever earned, but new wants made his income insufficient, and in 1823 he was nearly penniless. His next volume, the *Shepherd's Calendar*, 1827, met with little success, which was not increased by his hawking it himself. As he wrought again on the fields his health improved; but farm operations being unsuccessful he was "as dull as a fog in November," and became seriously unwell. Although a noble patron presented him with a new cottage and a piece of ground, Clare was full of anguish to leave the "old home of homes." The removal to Northborough was his culminating period, and gradually his mind gave way. His last and best work, the *Rural Muse*, published in 1835, was noticed by "Christopher North" alone. Bursts of insanity followed, of which he had for some time shown symptoms; and in July, 1837, he was kept in confinement, and was subsequently lodged in Northampton General Lunatic Asylum, where he died May 20, 1864. The neglect of friends and relatives to visit him, together with the non-success of his later poems, preyed heavily upon his mind. In the asylum he penned his

most thrilling poem, beginning—"I am! yet what I am who cares or knows?" In its exceeding sadness of thought there is sublime feeling—a strain of divine music in the wail of woe—and the poet longed to

"Sleep as I in childhood sweetly slept,
Full of high thoughts, unborn. So let me lie,
The grass below, above the vaulted sky."

Clare was one of the most uneducated poets, and sung from the fullness of his heart; he was one of England's sweetest singers of nature, whose thoughts "gild life's brambles with a flower," and whose songs were gathered from the fields. Many of his sonnets, which display great power of word-painting, are sweet as "sunshine in summer dream."

CLAREMONT, a town of Sullivan county, N. H., is situated on Sugar river, fifty-five miles west-north-west of Concord, the township being bounded on the west by the Connecticut river. It is a railroad and banking town, and possesses magnificent water-power. This is utilized to run several cotton mills, and for manufactories of paper and woolen goods. Claremont contains six churches and a public library, the Stevens High School and several public schools, and three newspaper offices. The population in 1890 was stated at 5,503.

CLARENDON, EDWARD HYDE, FIRST EARL OF, historian and statesman, born at Dinton in Wiltshire, on the 18th February, 1609, was the third son of Henry Hyde, a gentleman belonging to an ancient Cheshire family. The profession first chosen for him was the church; and consequently, after being educated at home by the vicar of the parish up to the age of thirteen, he was sent to Magdalen College, Oxford. But his eldest brother having died young, the death of his second brother in 1625 left him heir to his father's estate; and the law being now considered a more appropriate profession, he was entered at the Middle Temple by his uncle, Sir Nicholas Hyde, then treasurer of that society. At the age of twenty he married a daughter of Sir George Ayliffe; but in six months he was left a widower; and three years later he took as second wife a daughter of Sir Thomas Aylesbury, Master of Requests.

While yet a young man Hyde had the happiness, as he boasts in his autobiography, of being admitted into the most brilliant literary society of his time. Among poets he knew Ben Jonson, Waller and Carew; he was acquainted with Selden, and with nearly every other scholar of eminence in his day; and he had a rare opportunity of acquiring, from the conversation of the subtle and impartial Chillingworth and the outspoken but liberal-minded Hales, a breadth of sympathy which unhappily his natural temper and the rough pressure of the times combined to prevent him from ever displaying. The brilliant, tender-hearted Falkland also was his most intimate friend. And, fortunately for his professional advancement, besides possessing considerable family influence, he enjoyed the favor of Laud, who, as commissioner of the treasury, regularly consulted him in regard to mercantile affairs.

When, therefore, in April, 1640, Hyde took his seat in the Short Parliament as representative of Wootton-Basset, he was already known as a lawyer of mark. During its session of barely three weeks, he made himself prominent as a zealous supporter of the popular party; and his maiden speech consisted of a vigorous attack upon the Earl Marshal's Court, which had become notorious for the savage manner in which it resented the least affront offered to a man of rank.

In the Long Parliament (in which he sat as a member for Saltash) his zeal for reform was at first in no degree diminished. He effected the final overthrow of the Earl

Marshal's Court. He sat as chairman of the committee which collected evidence against the Councils of York and of the Marshes, and of the committee which was appointed to consider the advisability of remodeling the government of the church. He went entirely with the popular party in their condemnation of ship-money; and it was largely through the earnest speech which Hyde delivered against him that Lord Keeper Finch was driven into exile. When, however, Episcopacy was threatened, and it became apparent that the popular leaders were not to be satisfied with merely temporary reform, but were resolved on gaining a permanent triumph, Hyde, in perfect accordance with both his religious and his political principles, went over to the royalist party. He uttered an open and determined protest against the Grand Remonstrance, and drew up an answer to it which was adopted and published by the king, and which procured for him the offer of the post of solicitor-general.

In 1645, after the final ruin of the king's cause at Naseby, Hyde was appointed, with Lord Capel, Lord Hopton, and Sir John Colepepper, to watch over the safety of the prince of Wales. In the spring of the next year they were compelled to take refuge in Sicily, whence, after six weeks' stay, they passed to Jersey. Soon the prince was called by his mother to Paris, against the will of the council, none of whom accompanied him except Colepepper. Hyde resided at Jersey for nearly two years, solacing himself by studying the Psalms and recording the meditations which they suggested, and also by composing the first four books of his greatest work, the *History of the Rebellion*.

On the Restoration, Hyde received the posts of lord chancellor and chancellor of the exchequer, and at once assumed the direction of the Government. What the Episcopalian Royalists now required was not so much a leader to stimulate, as a guide to control. Their fervor and their strength were more than sufficient to replace the king firmly on the throne, and to raise the church to a loftier position than it had ever before attained.

But, notwithstanding his exaggerated reverence for the sovereign, his passionate attachment to the church, and his real worth, Hyde became the most unpopular man in the kingdom. The settlement of landed property, which had been made by the Act of Indemnity deeply offended hundreds of the cavaliers; for, while it restored all they had lost to those who, like Hyde himself, had both escaped the necessity of selling their land and refused to bow to the government of Cromwell, it did nothing for those who had sold their property, even though they had ruined themselves to support the cause of the king. By the people, who had no means of judging for what he was responsible and of what he was innocent, he was blamed for every misfortune. The sale of Dunkirk was the chief crime with which they charged him; but there was no reason to disbelieve his own declaration that he was at first opposed to the scheme, while it must be allowed that there is force in his excuses that the fortress was expensive to maintain, that the money offered for it was sorely needed, and that its worth to England was by no means great. Still its surrender was a great political mistake; it displayed to the popular eye in far too striking a light the difference between the government of Clarendon and the government of Cromwell. He was also held responsible for the marriage of the king with the childless and Catholic princess of Portugal, and he was even accused of having selected her in order that his own descendants might inherit the throne. And, though his worst political weakness — his allowing Charles to accept the bribes of France — was not then made known, it was the general belief that his splendid mansion in Piccadilly had been erected with foreign gold.

Of all dissenters, Catholic and Protestant, his bitter dislike had made determined enemies; and his repellant hauteur, his somewhat conceited austerity, offended the courtiers, and aroused their derision. All these enemies, however, he could afford to scorn so long as he retained the regard of the king, who, to do him justice, was unusually mindful of his debts to Hyde. In 1661 the chancellor, on the disclosure of the marriage of his daughter to the duke of York, was created Baron Hyde of Hindon, and shortly after earl of Clarendon, at the same time receiving a gift of \$20,000; he had already refused the offer of a garter and 10,000 acres. Two years later the attempt to impeach him, made by the earl of Bristol, resulted in a miserable failure, and the accuser sought safety in flight. But in 1667 a second impeachment found him powerless to resist. His dignified censoriousness must always have been disagreeable to the king, who was also annoyed by his strenuous opposition to every scheme for tolerating the Catholics; and when Clarendon ventured to thwart his plans and interfere with his pleasures, annoyance was turned into hatred. Charles, having become enamored of Miss Fanny Stewart, resolved to marry her, and therefore determined to effect a divorce from the queen. This scheme, which threatened to exclude his descendants from the throne, Clarendon was bold enough to oppose; and it was insinuated by his enemies that the marriage of Miss Stewart to the duke of Richmond, which put an end to the project, had been brought about partly by his contrivance.

Misfortunes now pressed thick upon him. About the middle of 1667 his wife died; and a few days after the duke of York was sent to him with a message requesting him to resign the chancellorship. This he could not be persuaded to do; he so far forgot his dignity as to plead personally with his master to be allowed to retain his office; and he also addressed to him a humble letter, in which he denied that he had been in any way concerned with Miss Stewart's marriage, and declared that he had no acquaintance with either herself or her husband. But his humiliation was in vain; and on the 30th of August Secretary Morrice was sent to take from him the great seal. On the 6th November the Commons drew up seventeen articles of impeachment against him. It would not have been easy to convict him of high treason. Several of the charges were exaggerated, and one or two were altogether false; there were some, however, sufficiently serious. The chief articles were that he had sought to govern by means of a standing army, and without Parliament; that he had confined prisoners uncondemned in places where they could not appeal to the law; that he had sold Dunkirk; that he had made a sale of offices, and obtained money by means of his position in various illegal ways; that he had introduced arbitrary government into the colonies; and that he had deceived the king with regard to foreign affairs, and had betrayed his plans to the enemy. It was, however, a general charge of high treason, without specified grounds, which was presented to the Lords, and this they refused to accept. Nevertheless it became plain even to Clarendon himself that he was deserted, and that his cause was hopeless. On the 29th November, 1667, he left England forever, after addressing a vindication of his conduct to the Lords, which, being communicated to the Commons, was voted seditious, and burned by the hangman. A bill of attainder was brought in against him, but the Lords rejected it; and the matter was finally compromised by the passing of an Act which condemned him to perpetual banishment, unless he should appear for trial within six weeks.

Meanwhile, sick in body and in mind, he had landed in France; but, before reaching Rouen, he was stopped,

and informed that he could not be allowed to remain in the country. After several refusals, however, permission to stay was granted; and he was conducted to Avignon by a French officer. At Evreux an incident occurred which shows the bitterness of the feeling with which he was regarded by his countrymen. A party of English sailors who happened to be working in the town, on hearing of his arrival, broke into his bed-room, burst open his trunks, attacked and wounded him with their swords, and were only prevented from murdering him by the arrival of a body of French troops. From Avignon he passed to Montpellier; and the rest of his life was spent chiefly in this town and in Rouen. His time was thenceforth passed in the quiet pursuit of literature. He resumed his *Meditations on the Psalms*, concluded his *History of the Rebellion*, and wrote his *Life*, *A Short View of the State of Ireland*, most of his *Essays*, and his *Survey of Hobbes's Leviathan*. Twice he humbly appealed to Charles that he might be allowed to die in his native land; but not even a reply was vouchsafed, and it was at Rouen that he expired on the 9th December, 1674.

The character of Clarendon is well-marked. In the court of Charles II. he was almost the only man who lived chastely, drank moderately, and swore not at all. Three principles guided his life. The first, from which he never swerved, was a passionate attachment to the religion and polity of the Church of England. The second, to which he was faithful on the whole, though with some declensions, was the determination to maintain what he regarded as the true and ideal English constitution. The third, which he more than once nobly sacrificed to the other two, was a desire for personal advancement. In political practice he sadly wanted both insight and tact, and, though he could plead most cleverly and affectingly in a state paper, he was too apt, when confronted by opposition in Parliament, to lose his temper.

It is in literature that Clarendon's name best deserves to be remembered. His *Essays* (which are chiefly didactic) and his *Survey of Hobbes's Leviathan* scarcely rise above the commonplace, but his *History of the Rebellion* and his *Life of Edward, Earl of Clarendon* have a high and permanent value.

CLARENDON, GEORGE WILLIAM FREDERICK VILLIERS, FOURTH EARL OF, diplomatist and statesman, was born in London, 12th January, 1800, and died 27th June, 1870.

Young George Villiers, the subject of this notice, entered upon life under circumstances which gave small promise of the brilliancy of his future career. He was well born; he was heir presumptive to an earldom; and his mother was a woman of great energy, admirable good sense, and high feeling. But the means of his family were contracted; his education was desultory and incomplete; he had not the advantages of a training either at a public school or in the House of Commons. He went up to Cambridge at the early age of sixteen, and entered St. John's College on the 29th June, 1816. In 1820, as the eldest son of an earl's brother with royal descent, he was enabled to take his degree under the statutes of the university then in force; and in the same year he was appointed attaché to the British embassy at St. Petersburg, where he remained three years, and acquired that practical knowledge of the business of diplomacy which was of so much use to him in after life. He had received from nature a singularly handsome person, a polished and engaging address, a ready command of languages, and a remarkable power of composition.

Upon his return to England in 1823, Mr. Villiers was appointed to a commissionership of customs, an office

which he retained for about ten years. On the 16th of August, 1833 Mr. Villiers was appointed minister at the court of Spain. For six years he continued to give the most active and intelligent support to the Liberal Government of Spain. In January, 1840, he entered Lord Melbourne's administration as Lord Privy Seal, and from the death of Lord Holland in the autumn of that year, Lord Clarendon also held the office of Chancellor of the Duchy of Lancaster until the dissolution of the ministry in 1841.

The interval of Sir Robert Peel's great administration (1841-1846) was to the leaders of the Whig party a period of repose; but Lord Clarendon took the warmest interest in the progressive triumph of the principles of free trade and in the ultimate repeal of the corn-laws, of which his brother, Mr. Charles Pelham Villiers, had been the earliest, most constant, and the most able advocate. For this reason, upon the formation of Lord John Russell's first administration, Lord Clarendon accepted the office of President of the Board of Trade. Twice in his career the Governor-Generalship of India was offered him, and once the Governor-Generalship of Canada;—these he refused from reluctance to withdraw from the politics of Europe. But in 1847 a sense of duty compelled him to take a far more laborious and uncongenial appointment. The desire of the cabinet was to abolish the Lord-Lieutenancy of Ireland, and Lord Clarendon was prevailed upon to accept that office, with a view to transform it ere long into an Irish Secretaryship of State. But he had not been many months in Dublin before he acknowledged that the difficulties then existing in Ireland could only be met by the most vigilant and energetic authority, exercised on the spot. The crisis was one of extraordinary peril. Agrarian crimes of horrible atrocity had increased three-fold. The Catholic clergy were openly disaffected. This was the second year of a famine which had desolated Ireland. The population, decimated by starvation and disease, lived upon the poor-rate and the alms of England, and extraordinary measures were required to regulate the bounty of the Government and the nation. In 1848 the French Revolution let loose fresh elements of discord, which culminated in an abortive insurrection, and for a lengthened period Ireland was a prey to more than her wonted symptoms of disaffection and disorder. During those five years Lord Clarendon held the reins of the vice-regal government; a task more entirely repugnant to his own predilections and more certain to be repaid with unmerited obloquy could not have been imposed upon him. But he bore up against that flood of hostile passions and difficulties with unshaken firmness. He fed the starving; he subdued the factions; he crushed the rebellious. He left behind him permanent marks of improvement in the legislation of Ireland; and he practiced, as far as possible, the broadest toleration of races and of creeds.

Upon the formation of the coalition ministry between the Whigs and the Peelites, in 1853, under Lord Aberdeen, the premier placed, without hesitation, the foreign office in the hands of Lord Clarendon; but incredulous himself of the peril of war, which was already casting its dark shadow over the East, Lord Aberdeen sought rather to check than to stimulate the decisions which might possibly have arrested the course of hostilities. It can hardly now be doubted that the hesitation which appeared to mark the successive steps of the Western allies encouraged the czar to more daring aggressions; and Lord Clarendon confessed, in an expression which was never forgotten, that we "drifted" into war, which a more prompt defiance and an open alliance between the Western powers and the Porte might have arrested. But the war once begun Lord Clarendon continually

urged the prosecution of it with the greatest energy. He employed every means in his power to stimulate and assist the war departments, and above all he maintained the closest relations with the French ally, on whose co-operation everything depended. The Emperor Nicholas had speculated on the impossibility of the sustained joint action of France and England in council and in the field. It was mainly by Lord Clarendon at Whitehall and by Lord Raglan before Sebastopol that such a combination was rendered practicable, and did eventually triumph over the enemy. The diplomatic conduct of such an alliance for three years between two great nations jealous of their military honor and fighting for no separate political advantage, tried by excessive hardships and at moments on the verge of defeat, was certainly one of the most arduous duties ever performed by a minister. No one will ever know all the labor it cost; but the result was due in the main to the confidence with which Lord Clarendon had inspired the emperor of the French, and to the affection and regard of the empress, whom he had known in Spain from her childhood.

In 1856 Lord Clarendon took his seat at the Congress of Paris convoked for the restoration of peace, as first British Plenipotentiary, invested with full powers. It was the first time since the appearance of Lord Castlereagh at Vienna that a secretary of state for foreign affairs had been present in person at a congress on the continent. Lord Clarendon's first care was to obtain the admission of Italy to the council chamber as a belligerent power, and to raise the barrier which still excluded Prussia as a neutral one. But in the general anxiety of all the powers to terminate the war there was no small danger that the objects for which it had been undertaken would be abandoned or forgotten. It is due, we may say, entirely to the firmness of Lord Clarendon that the principle of the neutralization of the Black Sea was preserved, that the Russian attempt to trick the allies out of the cession in Bessarabia was defeated, and that the results of the war were for a time secured. The Congress was eager to turn to other subjects, and perhaps the most important result of its deliberations was the celebrated Declaration of the Maritime Powers, which abolished privateering, defined the right of blockade, and limited the right of capture to enemy's property in enemy's ships.

Upon the reconstitution of the Whig administration in 1859, Lord John Russell made it a condition of his acceptance of office under Lord Palmerston that the Foreign department should be placed in his own hands, which implied that Lord Clarendon should be excluded from office, as it would have been inconsistent alike with his dignity and his tastes to fill any other post in the Government. The consequence was that from 1859 till 1864 Lord Clarendon remained out of office, and the critical relations arising out of the Civil War in the United States were left to the guidance of Earl Russell. But he re-entered the cabinet in May, 1864, as Chancellor of the Duchy of Lancaster; and upon the death of Lord Palmerston in 1865, Lord Russell again became prime minister, when Lord Clarendon returned to the Foreign Office, which was again confided to him for the third time upon the formation of Mr. Gladstone's administration in 1868. To the last moment of his existence, Lord Clarendon continued to devote every faculty of his mind and every instant of his life to the public service; and he expired surrounded by the boxes and papers of his office on June 27, 1870.

CLARET (Fr. *Clairret*), a term originally applied to wines of a light-red color, but which is now used as a general name for the red wines of Bordeaux.

CLARI, GIOVANNI CARLO MARIA, chapel-master at Pistoia, was born at Pisa in 1669. The time of his

death is unknown. He was the most celebrated pupil of Colonna, chapel-master of S. Petronio, at Bologna. The works by which Clari distinguished himself pre-eminently are his vocal duets and trios, with a continued bass, published in 1720.

CLARINET, or CLARINET, a wind instrument, usually of wood, in which the sound is produced by a single thin reed. It is supposed to have been invented in 1696 by Joseph Christoph Denner, at Nuremberg, though some authorities trace its existence to medieval times. Since its invention it has undergone many changes and improvements, and the modern clarinet, from the extent, quality, and variety of its tone, is one of the most perfect of wind-instruments. The tube of the instrument is cylindrical, ending in a bell, with holes to be covered by the fingers and left-hand thumb; and keys, generally thirteen in number, to supply the additional tones and half-tones. Mozart, Beethoven, Mendelssohn, Weber, Meyerbeer, Spohr, and Rossini have made extensive use of the clarinet in the orchestral compositions, though some of the parts written for the instrument, especially in the overtures to *Semiramide*, *Otello*, and *Gazza Ladra* by Rossini, are so difficult as to be almost unplayable. Notwithstanding this fact, the instrument is a favorite.

CLARK, SIR JAMES, an English physician, was born in 1788, in Banffshire. In 1824 he was chosen physician to Prince Leopold of Saxe-Coburg, and two years after he commenced to practice in London as physician to the St. George's Parochial Infirmary. He was elected a fellow of the Royal Society in 1832; in 1835 he was appointed physician to the Duchess of Kent and the Princess Victoria, and on the accession of the latter to the throne he became physician in ordinary to the Queen. He died in 1870.

CLARK, THOMAS, a distinguished chemist, was born at Ayr, on the 31st of March, 1801. In 1826 he was appointed lecturer on chemistry to the Glasgow mechanics institution, where he propounded advanced views on the atomic theory and the theory of salts. The same years he published his first papers, containing his discovery of the pyrophosphate of soda, which was a turning-point in chemical history. Becoming a medical student in the university of Glasgow, he took the degree of M.D. in 1831. He was for several years apothecary to the Glasgow infirmary and published several important papers on pharmacy. In 1832 he published in the *Westminster Review* an elaborate inquiry into the existing system of weights and measures. In 1833 he obtained by competition the chair of chemistry in Marischal College, Aberdeen. About the same time he matured two important practical researches relating to the construction of hydrometers and the means of detecting arsenic. In 1835 he published a paper on the the *Application of the Hot-Blast* explaining the principle of its efficacy. In 1836 appeared his letter to Mitscherlich on the Oxygen Salts. Clark's name became most generally known in connection with his water tests and his process for softening hard (chalk) waters. These came out in 1841. The tests have been in use ever since; and the softening process intended for the London waters, but not as yet adopted by any of the London companies, has been very successfully carried out in several places. In 1844 his health gave way under mental strain, and he ceased to be able to lecture to his class. Being removed also from his laboratory, he did little more chemical work, except directing his assistant in perfecting his water tests. His active mind, however, could not rest, and he took up several inquiries, the last of all, which occupied what strength he had for nearly twenty years before his death, being the historical origin of the Gospels. Proceeding

from one stage to another, he finally concentrated his energies on an attempt to settle the true readings of the Greek text of the three first Gospels. His mode of proceeding displayed the peculiar sagacity and tact shown in his scientific inventions, and his results had reached a form admitting of publication at the time of his death. The work would have been very valuable in connection with the revision of the Bible, and it is to be regretted that his surviving relatives did not see fit to publish it. Clark took a leading part in all the discussions relating to the improvement of the University of Aberdeen. He was an admirable lecturer, but unfortunately his teaching career was short. He died at Glasgow on the 27th of November, 1867.

CLARKE, EDWARD DANIEL, LL.D., an English traveler, was born in 1769, and died in 1822.

CLARKE, DR. SAMUEL, a celebrated English philosopher and divine, was born October 11, 1675; and having finished his education at the free school of Norwich in 1691, removed thence to Caius College, Cambridge, where his uncommon abilities soon began to display themselves. Though the philosophy of Descartes was at that time the reigning system at the university, yet Clarke easily mastered the new system of Newton, and contributed greatly to the spread of the Newtonian philosophy by publishing an excellent translation of Rohault's *Physics* with notes, which he finished before he was twenty-two years of age. The system of Rohault was founded entirely upon Cartesian principles, and was previously known only through the medium of a rude Latin version. Clarke not only gave a new translation, but added to it such notes as were calculated to lead students insensibly to other and truer notions of science.

Clarke afterwards turned his thoughts to divinity, and in order to qualify himself for the sacred office, devoted himself to the study of Scripture in the original, and of the primitive Christian writers.

In 1706 he wrote a refutation of some positions which had been maintained by Dr. Dodwell on the immortality of the soul, and this drew him into controversy with Collins. He also at this time wrote a translation of Newton's *Optics*, for which the author presented him with £500. In the same year also, through the influence of Bishop Moore, he obtained the rectory of St. Bennett's, Paul's Wharf, London; and he soon afterwards appeared at the court of Queen Anne, who appointed him one of her chaplains in ordinary, and afterwards, in 1709, presented him to the rectory of St. James, Westminster.

In 1712 he published a carefully punctuated and annotated edition of Cæsar's Commentaries, adorned with elegant engravings. During the same year he published his celebrated treatise on *The Scripture Doctrine of the Trinity*. It is divided into three parts. The first contains a collection and exegesis of all the texts in the New Testament relating to the doctrine of the Trinity; in the second the doctrine is set forth at large, and explained in particular and distinct propositions; and in the third the principal passages in the liturgy of the Church of England relating to the doctrine of the Trinity are considered. Whiston informs us that, some time before the publication of this book, a message was sent to him from Lord Godolphin and other ministers of Queen Anne, importing "that the affairs of the public were with difficulty then kept in the hands of those that were for liberty; that it was therefore an unseasonable time for the publication of a book that would make a great noise and disturbance; and that therefore they desired him to forbear till a fitter opportunity should offer itself,"—a message that Clarke of course entirely disregarded. The ministers were right in their conjectures; and the work not only provoked a great number

of replies, but occasioned a formal complaint from the Lower House of Convocation. Clarke, in reply drew up an apologetic preface, and afterwards gave several explanations, which satisfied the Upper House; and on his pledging himself that his future conduct would occasion no trouble, the matter was dropped.

In 1715 and 1716 he had a discussion with Leibnitz relative to the principles of natural philosophy and religion, which was at length cut short by the death of his antagonist. In 1727, upon the death of Sir Isaac Newton, he was offered by the court the place of Master of the Mint, worth on an average from £1200 to £1500 a year. This secular preferment, however, he absolutely refused,—a circumstance which Whiston regards as "one of the most glorious actions of his life, and affording undeniable conviction that he was in earnest in his religion." In 1729 he published the first twelve books of Homer's *Iliad*. This edition was printed in quarto, and dedicated to the duke of Cumberland. "The translation of Homer, who was Clarke's favorite author," says Bishop Hoadley, "with his corrections, may now be styled accurate; and his notes, as far as they go, are indeed a treasury of grammatical and critical knowledge. He was called to his task by royal command, and he has performed it in such a manner as to be worthy of the young prince for whom it was labored." The year of its publication was the last of Clarke's life. Hitherto, though not robust, he had always enjoyed a firm state of health; but on the morning of Sunday, 11th May, 1729, when going out to preach before the judges at Sergeant's Inn, he was seized with a sudden illness, which caused his death on the Saturday morning following. He died May 17, 1729, in the 54th year of his age.

Clarke, although in no department a genius of the first order, was a man of great general ability. He was eminent as a theologian, a mathematician, a metaphysician, and a philologist. His chief strength lay in his logical power. He was so disciplined and skillful a reasoner as to be able to contend on equal terms even with a Butler or a Leibnitz. Few have defended so well so many good causes. The materialism of Hobbes, the pantheism of Spinoza, the empiricism of Locke, the determinism of Leibnitz, Collins' necessitarianism, Dodwell's denial of the natural immortality of the soul, rationalistic attacks on Christianity, and the selfish morality of the sensationalists,—all found in him a formidable opponent, possessed of great strength of mind, extraordinary dialectic skill, and a thorough conviction of the importance and truth of the principles which he advocated.

CLARKSON, THOMAS, was born on the 28th March, 1760, at Wisbeach, in Cambridgeshire, where his father was head-master of the free grammar school. He was educated at St. Paul's School and at St. John's College, Cambridge. Having taken the first place among the middle bachelors as Latin essayist, he succeeded in 1785 in gaining a similar honor among the senior bachelors. The subject appointed by the vice-chancellor, Dr. Peckhard, was one in which he was himself deeply interested—*Anne liceat invitòs in servitutem dare?* (Is it right to make men slaves against their will?) In preparing for this essay Clarkson consulted a number of works on African slavery, of which the chief was Benezet's *Historical Survey of New Guinea*; and the atrocities of which he read affected him so deeply that he determined to devote all his energies to effect the abolition of the slave trade, and gave up his intention of entering the church. His first measure was to publish, with additions, an English translation of his prize-essay (June, 1786). He then commenced to search in all quarters for information concerning slavery. He soon discovered that the cause had already been taken up to some ex-

ient by others, most of whom belonged to the Society of Friends, and among the chief of whom were William Dillwyn, Joseph Wood, and Granville Sharp. With the aid of these gentlemen, a committee of twelve was formed in May, 1787, to do all that was possible to effect the abolition of the slave trade. Meanwhile Clarkson had also gained the sympathy of Wilberforce, Whitbread, Sturge, and several other men of influence. Traveling from port to port, he now commenced to collect a large mass of evidence; and much of it was embodied in his *Summary View of the Slave Trade, and the Probable Consequences of its Abolition*, which, with a number of other anti-slavery tracts, was published by the committee. Pitt, Grenville, Fox, and Burke looked favorably on the movement; in May, 1788, Pitt introduced a parliamentary discussion on the subject, and Sir W. Dolben brought forward a bill providing that the number of slaves carried in a vessel should be proportional to its tonnage. A number of Liverpool and Bristol merchants obtained permission from the House to be heard by counsel against the bill, but on the 18th of June it passed the Commons. Soon after Clarkson published an *Essay on the Impolicy of the Slave Trade*; and for two months he was continuously engaged in traveling that he might meet men who were personally acquainted with the facts of the trade. From their lips he collected a considerable amount of evidence; but only nine could be prevailed upon to promise to appear before the privy council. Meanwhile other witnesses had been obtained by Wilberforce and the committee, and on the 12th May, 1789, the former led a debate on the subject in the House of Commons, in which he was seconded by Burke and supported by Pitt and Fox. It was now the beginning of the French Revolution, and in the hope that he might arouse the French to sweep away slavery with other abuses, Clarkson crossed to Paris, where he remained six months. He found Necker head of the Government and obtained from him some sympathy, but little help.

Mirabeau, however, with his assistance, prepared a speech against slavery, to be delivered before the National Assembly, and the Marquis de la Fayette entered enthusiastically into his views. During this visit Clarkson met a deputation of negroes from St. Domingo, who had come to France to present a petition to the National Assembly, desiring to be placed on an equal footing with the whites; but the storm of the Revolution permitted no substantial success to be achieved. Soon after his return home he engaged in a search, the apparent hopelessness of which finely displays his unshrinking laboriousness and his passionate enthusiasm. He desired to find some one who had himself witnessed the capture of the negroes in Africa; and a friend having met by chance a man-of-war's man who had done so, Clarkson, though ignorant both of the name and of the residence of the sailor, at once set out in search of him, and after many disappointments actually discovered him. His last tour was undertaken in order to form anti-slavery committees in all the principal towns. At length, in the autumn of 1794, his health, which had long been impaired by his uninterrupted exertions, gave way, and he was obliged to cease active work. He did not, however, entirely give up the cause. At the suggestion of Wilberforce and others, he occupied his time in writing a *History of the Abolition of the Slave Trade*, which appeared in 1808. In 1818 he had an interview at Paris with the emperor of Russia, to whom he presented an address against the negro slave trade. He again visited the emperor during the conference of the European monarchs which was held at Aix-la-Chapelle. He died at the age of eighty-six, at his patrimonial house, Playford Hall, Suffolk.

CLARKSVILLE, the county seat of Montgomery county, Tenn., is situated on the right bank of the Cumberland river, at the mouth of the Red river, and sixty-five miles below Nashville. Its chief article of export is tobacco, which is shipped both by river and railroad. The manufacturing industries include planing mills, iron foundries, chair factories, flouring mills, and an agricultural implement works. The city is the seat of the Southwestern (Presbyterian) University, founded in 1874. Clarksville contains three national and two other banks, a number of churches and schools, and a female academy. Population in 1890, 8,053.

CLAUBERG, JOHN, one of the most noted of the immediate followers of Descartes, was born at Solingen, in Prussia, in the year 1622. After traveling in France and England, he came to Leyden, where he studied philosophy. He died in 1665.

CLAUDE, JEAN (1619-1687), a famous French Protestant preacher and controversialist, was born at Sauvetat near Agen, where his father was a Protestant minister. He held for eight years the office of professor of theology in the Protestant college of Nîmes; but in 1661, having opposed a suggestion which was made at a provincial synod for reuniting Catholics and Protestants, he was forbidden to preach in Lower Langeudoc. On visiting Paris in order to appeal against this command, he became engaged in a controversy with Bossuet and Arnauld concerning the Eucharist. In 1662 he obtained a post at Montauban similar to that which he had lost; but after four years he was removed from it also. He next became pastor in Paris, where he continued his controversy with Bossuet. On the revocation of the Edict of Nantes he fled to Holland, where he died.

CLAUDE OF LORRAINE, or **CLAUDE GELÉE**, the celebrated landscape painter, was born of very poor parents at the village of Chamagne in Lorraine. When it was discovered that he made no progress at school, he was apprenticed, it is commonly said, to a pastry-cook, but this is extremely dubious. At the age of twelve, being left an orphan, he went to live at Freiburg with an elder brother, Jean Gelée, a wood-carver of moderate merit, and under him he designed arabesques and foliage. He afterwards rambled to Rome to seek a livelihood; but from his clownishness and ignorance of the language, he failed to obtain permanent employment. He next went to Naples, to study landscape painting under Godfrey Waals, a painter of much repute. With him he remained two years; then he returned to Rome, and was domesticated until April, 1625, with another landscape-painter, Augustin Tassi, who hired him to grind his colors and to do all the household drudgery. His master, hoping to make Claude serviceable in some of his greatest works, advanced him in the rules of perspective and the elements of design. Under his tuition the mind of Claude began to expand, and he devoted himself to artistic study with great eagerness. He exerted his utmost industry to explore the true principles of painting by the incessant examination of nature; and for this purpose he made his studies in the open fields, where he very frequently remained from sunrise till sunset, watching the effect of the shifting light upon the landscape. Leaving Tassi, he made a tour in Italy, France, and a part of Germany, including his native Lorraine, suffering numerous misadventures by the way. Karl Dervent, painter to the duke of Lorraine, kept him as assistant for a year; and he painted at Nancy the architectural subjects on the ceiling of the Carmelite church. He did not, however, relish this employment, and in 1627 returned to Rome. Here, painting two landscapes for Cardinal Bentivoglio, he earned the protection of Pope Urban VIII., and rapidly rose into celebrity.

Claude was not only acquainted with the facts, but also with the laws, of nature; and Sandrart relates that he used to explain, as they walked together through the fields, the causes of the different appearances of the same landscape at different hours of the day, from the reflections or refractions of light, or from the morning and evening dews or vapors, with all the precision of a natural philosopher. He elaborated his pictures with great care; and if any performance fell short of his ideal, he altered, erased, and repainted it several times over.

His skies are aerial and full of lustre, and every object harmoniously illumined. His distances and coloring are delicate, and his tints have a sweetness and variety till then unexampled. He frequently gave an uncommon tenderness to his finished trees by glazing. His figures, however, are very indifferent; but he was so conscious of his deficiency in this respect, that he usually engaged other artists to paint them for him, among whom were Curtois and Filippo Lauri. Indeed, he was wont to say that he sold his landscapes and gave away his figures. In order to avoid a repetition of the same subject, and also to detect the very numerous spurious copies of his works, he made tinted outline drawings (in six paper books prepared for this purpose) of all those pictures which were transmitted to different countries; and on the back of each drawing he wrote the name of the purchaser. These books he named *Libri di Verità*. This valuable work has been engraved and published, and has always been highly esteemed by students of the art of landscape. Claude died at Rome at the age of eighty-two, on the 21st of November, 1682, leaving his wealth, which was considerable, between his only surviving relatives, a nephew and niece.

CLAUDET, ANTOINE FRANÇOIS (1797-1867), an eminent photographer, was born at Lyons. Shortly after the publication of Daguerre's results (1839), Claudet, by the addition of bromide and chloride of iodine to the iodide of silver employed by the former discoverer, greatly accelerated the process of production. This, with the use of iodide of gold in fixing the image, may be said to have completed the invention.

CLAUDIANUS, CLAUDIUS, the gifted poet who shed luster on the last decrepit era of Roman literature, was, as we learn from himself, an Egyptian by birth, and probably a native of Alexandria. It may be conjectured from his name that he was of Roman extraction, and it is hardly possible that he should have acquired such mastery over the Latin language if it had not been familiar to him from his boyhood. We have, however, his own authority for the assertion that his first poetical compositions were in Greek, and that he had written nothing in Latin before 395 A.D. In that year he appears to have come to Rome, and made his *début* as a Latin poet by a panegyric on the consulship of Olybrius and Probinus; the first brothers not belonging to the imperial family who had ever simultaneously filled the office of consul. This piece proved the precursor of the series of panegyric poems which compose the bulk of his writings. In 396 appeared the encomium on the third consulship of the Emperor Honorius, and the epic on the downfall of Rufinus, the unworthy minister of Arcadius at Constantinople. This revolution was principally effected by the contrivance of Stilicho, the great general and minister of Honorius. Claudian's poem appears to have obtained his patronage, or rather perhaps that of his wife Serena, by whose interposition the poet was within a year or two enabled to contract a wealthy marriage in Africa. Previous to this event he had produced (398) his panegyric on the fourth consulship of Honorius, his epithalamium on the marriage of

Honorius to Stilicho's daughter Maria, and his poem on the Gildonic war, celebrating the repression of a revolt in Africa. To these succeeded his piece on the consulship of Mallius Theodorus (399), the unfinished or mutilated invective against the Byzantine prime minister Eutropius, in the same year, the epics on Stilicho's first consulship and on his repulse of Alaric (400 and 403), and the panegyric on the sixth consulship of Honorius (404). From this time all trace of Claudian is lost, and he is generally supposed to have perished with his patron Stilicho in 408.

Claudian's position in literature is unique. It is sufficiently remarkable that, after nearly three centuries of torpor, the Latin muse should have experienced any revival in the age of Honorius; nothing less than amazing that this revival should have been the work of a foreigner, most surprising of all that a just and enduring celebrity should have been gained by official panegyrics on the generally uninteresting transactions of an inglorious epoch.

CLAUDIUS, APPIUS CÆCUS, a Roman patrician and author of the 4th century B.C. In 312 B.C., he was elected censor without having passed through the office of consul. His censorship was remarkable for the actual or attempted achievement of several great constitutional changes. In the year after his resignation of the censorship (307) he was elected consul. In 298 he was made interrex; and in 296, as consul, he led the army in Samnium, and the armies of the two consuls gained a victory over the Etruscans and Samnites; but he never triumphed, nor does his military career appear to have been at all distinguished. Next year he was prætor, and he was once dictator. To the Ogulnian law, admitting the plebeians to the offices of augur and pontifex, he was strongly opposed; and his advocacy of the cause of the democracy seems to have ended with his censorship. His ambition and his pride of race were, however, accompanied by a passionate love of Rome. He was already blind and tottering with age when Cineas, the minister of Pyrrhus visited him, but so vigorously did he oppose every concession that all the eloquence of Cineas was in vain, and the Romans forgot past misfortunes in the inspiration of his patriotism.

CLAUDIUS, APPIUS CRASSUS, was, according to Livy, a patrician notorious for his pride and cruelty and his bitter hatred of the plebeians. Twice they refused to fight under him, and, fleeing before their enemies, brought upon him defeat and disgrace. He retaliated by decimating the army. At length they effected his banishment, but he quickly returned, and again became consul. In the same year (451 B.C.) he was made one of the decemviri, who had been appointed to draw up a code of written laws, and so carefully did he act during his first year of office that he was the only one of the ten who was re-elected. With Claudius at their head, the new decemviri appear to have resolved on retaining permanent authority, but an outburst of popular feeling suddenly crushed their power. Enamored of the beautiful daughter of the plebeian centurion Virginus, Claudius attempted to seize her by an abuse of justice. One of his clients, Marcus Claudius, swore that she was the child of a slave belonging to him, and that she had been stolen by the childless wife of the centurion. Virginus was summoned from the army, but a private message was sent at the same time instructing the general to detain him. The first messenger was more speedy than the second, and on the day of trial Virginus was present to expose the conspiracy. Still judgment was given according to the evidence of Marcus, and Claudius commanded Virginia to be given up to him. There was but one way of escape, and in despair, her father seized a knife from a neighboring stall and plunged it in her

side. The popular passion was deeply stirred. Virgilius, with Icilius, the betrothed lover of his daughter, and Numitorius, her uncle, hurried to arouse the army; Horatius and Valerius put themselves at the head of the people. The decemviri were overthrown, and Appius Claudius died in prison, either by his own hand or by that of the executioner. Mommsen rejects the view given as above by Livy, and is inclined to hold that Claudius, as decemvir, was the pretended champion of the plebeians, and that the revolution which ruined him was a return of the people to the rule of the patricians, who are represented by Horatius and Valerius.

CLAUDIUS, or TIBERIUS CLAUDIUS DRUSUS NERO GERMANICUS, the first Roman emperor of the name, born at Lugdunum, (Lyons), in 10 B.C., was the son of Drusus and Antonia, and grandson of Livia, the wife of Augustus. Paralyzed and lame, and unable to speak with distinctness, he was an object of scorn even to his mother; and the natural diffidence and timidity of his character were increased by neglect and insult, till he was regarded as little better than an imbecile. His time was spent chiefly in the society of servants, and devoted to the industrious pursuit of literature; and until his accession he took no real part in public affairs, though Caligula honored him with the dignity of consul. His first wife was Plautia Urgulanilla, whom he divorced because he suspected her of designs against his life; his second, Ælia Petina, was also divorced; and his third wife was the infamous Valeria Messalina. In 41 A.D., on the murder of Caligula, Claudius was seized by the prætorians, and declared emperor. As soon as he gained resolution to assume the authority of his office, he proclaimed an amnesty for all except Chærea, the assassin of his predecessor, and one or two others. The account, however, of his painstaking government, his laborious personal administration of justice, his conquest of Britain, his extension of the *jus honorum* to the Gauls, his construction of the Claudian aqueduct and the harbor of Ostia, are matters of history (see ROMAN HISTORY). The cruelties of his reign appear to have been due to the facility of character which placed him completely under the influence of his favorite freedmen, of whom the most conspicuous were Narcissus, Pallas, and Polybius, and of his wife, the vicious and shameless Messalina, whom he fondly loved and honored. At length, according to the account of Tacitus, Messalina went through the ceremony of marriage with one of her lovers, and urged by her former confederate Narcissus, the emperor allowed her to be seized, and Narcissus put her to death. Suetonius throws a somewhat different light on the story, making it rather more probable, for he tells us that there was a rumor that the emperor desired and assisted in the marriage, because he had been warned by a soothsayer that the husband of Messalina was about to fall into misfortune. The next and fourth wife of Claudius was his niece Agrippina, a woman as criminal as any of her predecessors. She prevailed upon him to set aside his own son Britannicus in favor of Nero, her son by a former marriage; and in 54 A.D., that she might place the act beyond recall, she put the emperor to death by means of poison.

CLAUDIUS, MARCUS AURELIUS, GOTHICUS, the second of the Roman emperors of the name of Claudius, was born in Illyria or Dardania in the first half of the third century. On account of his military ability he was placed in command of an army by Decius; and Valerian appointed him general on the Illyrian frontier and ruler of the provinces of the lower Danube. During the reign of Gallienus, he was called to Italy in order to crush Aurcolus; and, on the death of the emperor (268 A.D.) he was chosen as his successor, in accord-

ance, it was said, with his express desire. He enjoyed great popularity, and, as far as we can now judge, he appears to have been a man of considerable ability and strength of character. The account of his reign belongs to the history of Rome.

CLAUDIUS, MATTHIAS, a German poet, otherwise known by the *nom de plume* of Asmus, was born in 1743 at Rheinfeld, near Lubeck, and died in 1815.

CLAVIJO, RUY GONZALEZ DE, a Spanish traveler of the fifteenth century, whose narrative is the first important one of its kind contributed to Spanish literature.

CLAY, HENRY, a celebrated American politician, born in Ashland, Hanover Co., Va., on the 12th April, 1777, was the son of a Baptist minister, who died when Henry was only five years old. His youth was consequently spent in some hardship, and for a time he worked on a farm; but at the age of fifteen he obtained a situation in the office of the clerk of the Court of Chancery. Having gained some influential friends, he began in 1796 to study law under Robert Brooke, the attorney-general. In 1797 he was admitted to the bar, and in the end of that year he commenced to practice in Lexington. His great power of influencing a jury soon brought him a flourishing practice; and having taken a prominent part in the discussions as to the constitution which was drawn up for the State of Kentucky, he was in 1803 chosen member of the Legislature of that State. Three years later he became for a few months member of the Senate of the United States. In the next year he again took his seat in the Legislature of Kentucky, of which in 1808 he was appointed speaker. It was during this session that he challenged a fellow-member, who had attacked him warmly in debate. The meeting took place; two shots were fired, and both parties were slightly wounded. In 1811 he became at once member for the first time and speaker of the House of Representatives, and he subsequently held the latter position four times. All his energies were now devoted to bringing about a declaration of war with Great Britain, and maintaining the contest with all the vigor possible. At the end of the war (1814) he was appointed one of the commissioners who was sent to Ghent to conclude the treaty of peace, and it was he who caused the erasure of the clause allowing Great Britain to navigate the Mississippi. During his visit to Europe he spent two months at Paris, enjoying the society of which Mme. de Staël was the queen. On his return to America he was again made speaker of Congress. In 1824 he allowed himself to be nominated for the office of president; but the election did not give to any one the required majority, and the decision between the three who had obtained the greatest number of votes had to be made by Congress. Clay, who had been fourth on the list, gave his support to John Q. Adams, whence arose his second duel, that with John Randolph, in which neither was hurt. Under Adams Clay accepted the post of secretary of state. In 1832 he was again candidate for the presidency, and again unsuccessfully; and in 1844 he was nominated for the third time with a similar result. He now retired from public life; but in 1848 he was again called into the Senate; and in 1850 he carried a bill, which sought to avert the great battle on the slavery question. In 1851, however, the weakness of his health prevented him from taking any part in public life; and on the 29th July of the next year he died. On receiving the news of his death Congress adjourned; next day orations in his praise were delivered in both Houses; and the day of his funeral was observed in New York and in all the chief towns of the State to which he belonged.

Henry Clay commenced his political career in 1799 by attempting to persuade the State of Virginia to abolish

slavery. He never, however, made any attempt to free the whole country from the system; indeed, the effect of his policy (and the most important of his measures were those concerning slavery) was to maintain it. His name is connected with the "Missouri Compromise," which, while abolishing slavery in all other States north of lat. $36^{\circ} 30'$, permitted it in Missouri, and with several other measures sanctioning slavery in the slave States. His bill of 1850, nicknamed the "Omnibus Bill," provided that New Mexico and Utah, the States newly acquired from Mexico, should be left to their own discretion as to slavery, and that California should be received into the Union as a slave State; while slavery should be prohibited in the District of Columbia. Another most important feature of Clay's policy was the desire to free America from European control, which led him to advocate, in some of his most powerful speeches, the recognition of the independence of the South American republics which had revolted from Spain. The part he took in the war with England has already been noticed. His action with regard to the tariff was not uniform; in 1832 he proposed to reduce gradually a large number of duties, but afterwards he more than once sought to make it more protective. Though first opposed to the establishment of a national bank, he subsequently spoke vigorously in its favor. For some time he was president of the Colonization Society.

CLAY CENTER, the county seat of Clay County, Kansas, a railroad and telegraph town of about 5,500 inhabitants.

CLAZOMENÆ, now **KELISMAN**, a town of Ionia, and a member of the Ionian Dodecapolis, or Confederation of Twelve Cities, on the Gulf of Smyrna, about twenty miles from that city, in a south-west direction.

CLEANTHES, a Stoic philosopher, born at Assos in Asia Minor, about 300 B.C., was originally a boxer. He first listened to the lectures of Crates, the Cynic, and then to those of Zeno, the Stoic, supporting himself meanwhile by working all night as water-carrier to a gardener. His apparent idleness aroused suspicion, and he was summoned before the Areopagus; but when his story became known the court offered him a present of ten minæ, which he refused to accept. His power of patient endurance, or perhaps his slowness, earned him the title of the Ass; but such was the esteem awakened by his high moral qualities that, on the death of Zeno in 263, he became the leader of the school.

CLEARCHUS, a Spartan general of the fifth century B.C. After serving in the Hellespont and at the Battle of Cyzicus, he became harmost of Byzantium; but, during his absence, the town was surrendered, and he was consequently punished by a fine. He continued, however, to be employed in matters of importance; but at length, after being sent into Thrace to protect the Greek colonies he was recalled by the Ephors. He refused to obey, and made himself master of Byzantium. Being driven thence, he visited the court of Cyrus, for whom he levied a little army of Greek mercenaries, which he led on the famous Expedition of the Ten Thousand. He was the only one of the Greeks who was acquainted with the real intention of Cyrus; and it was not till they had proceeded too far to retire with safety that he made known the object for which they had been collected. He commanded a division of his countrymen in the Battle of Cunaxa (401 B.C.); and he led them on their difficult return journey, till, being treacherously seized by Tissaphernes, he was sent to the court of Artaxerxes, where he was put to death.

CLEARFIELD, the county seat of the county of the same name in Pennsylvania, is situated on the west branch of the Susquehanna river, forty miles north of Altoona. Coal is mined in the vicinity, and lumber

forms the chief article of export. There are two national banks and one other bank, gas works, planing mills, foundries and machine shops, manufactories of steam engines and fire brick, and newspaper offices. Population (1890), 3,500.

CLEARING-HOUSE, in Banking. The facilities afforded by bankers, in collecting bills, checks, etc., early imposed the necessity for an organized form of interchange of such securities, which would at once save labor and curtail the amount of floating cash requisite to meet the settlements of the bankers if effected singly. This necessity led to the establishment of clearing-houses, at which all the banks are represented directly or by agents, and through which collections on one another are made by a comprehensive system of debits and credits.

CLEARING-NUT (*Strychnos patatorum*), a small tree of the same genus with the nux vomica, abundant in the forests of India, and of which the seeds are much used for clearing water.

CLEAR-STORY, or **CLERE-STORY**. Originally this term was applied to the upper part of any building, which was lighted by several windows, or by a row of small windows or openings in the wall. Latterly, it came to be applied exclusively to the upper part of the central aisle of a church, in which windows were placed above the roof of the side aisles.

CLEATS, in Ship-building, are pieces of wood fastened to various parts of the vessel, and having holes or recesses for fastening ropes. There are several kinds, applied to various purposes, and bearing the names of belaying, comb, mast, shroud, single, stop, thumb, etc., cleats.

CLEAVAGE, or **SLATY CLEAVAGE**, is a condition of rocks in which they split easily into thin plates. The direction of these laminæ may be in the plane of stratification, but it frequently differs from it. Cleavage is the result of an operation which is subsequent to, and entirely independent of, the original stratification of the rocks.

CLEBURNE, the county seat of Johnson county, Tex., is a flourishing town, which in the past ten years has grown from a population of 1,800 to one of 5,000 (1890). It has considerable trade, two national banks, six churches, good schools, and railroad and telegraph connections.

CLEF, a musical character placed on the staff, by which the names of the notes are fixed. There are three kinds of clefs—viz., the G, the C, and the F clef.

CLEG, a name given to some insects of the dipterous family *Tabanidæ*, the females of which are extremely troublesome to horses, cattle, and human beings in summer, piercing their skins by means of a curious apparatus of small lancets with which the mouth is furnished, and drinking their blood.

CLEMATIS (Gr. *clema*, the shoot of a vine), a genus of plants of the natural order *Ranunculaceæ*, having four colored sepals, no corolla, and for fruit numerous, one-seeded achænia with long—generally feathery—awns. The species are numerous, herbs or shrubs, generally with climbing stems, and much scattered over the world. They possess more or less active caustic properties.

CLEMENS ALEXANDRINUS. The little we know of Clemens Alexandrinus is mainly derived from his own works. The earliest writer after himself who gives us any information with regard to him is Eusebius. The only points on which his works now extant inform us are his date and his instructors. His date is usually assigned to 193–211 A.D.

Clement occupies a profoundly interesting position in the history of Christianity. He is the first to bring all

the culture of the Greeks and all the speculations of the Christian heretics to bear on the exposition of Christian truth. He does not attain to a systematic exhibition of Christian doctrine, but he paves the way for it, and lays the first stones of the foundations. In some respects Justin anticipated him. He was also well acquainted with Greek philosophy, and took a genial view of it; but he was not nearly so widely read as Clement. The list of Greek authors whom Clement has quoted occupies upward of fourteen of the quarto pages in Fabricius' *Bibliotheca Græca*. He is at home alike in the epic and the lyric, the tragic and the comic poets, and his knowledge of the prose writers is very extensive. He made a special study of the philosophers. Equally minute is his knowledge of the systems of the Christian heretics. And in all cases it is plain that he not merely read but thought deeply on the questions which the civilization of the Greeks and the various writings of poets, philosophers, and heretics raised. He pondered on all he read that he might gain a clearer insight into the truth. But it was in the Scriptures that he found the greatest delight. He believed them to contain the revelation of God's wisdom to men. He quotes all the books of the Old Testament except Ruth and the Song of Solomon.

All early writers speak of Clement in the highest terms of laudation, and he certainly ought to have been a saint in any church that reveres saints. But Clement is not a saint in the Roman Church. He was a saint up till the time of Benedict XIV., who read Photius on Clement, believed him, and struck the Alexandrian's name out of the calendar. The Pope was unquestionably wrong; and many Roman Catholic writers, though they yield a practical obedience, have adduced good reason why the decision of the Pope should be reversed.

CLEMENT, the name borne by fourteen popes.

CLEMENT I. (Clemens Romanus). See APOSTOLIC FATHERS.

CLEMENT II. (Suidger, a Saxon, bishop of Bamberg) was chancellor to the Emperor Henry III., to whom he was indebted for his elevation to the Papacy upon the abdication of Gregory VI. (December, 1046.) His short pontificate was only signalized by the convocation of a council in which decrees were enacted against simony. He died in October, 1047, and was interred at Bamberg.

CLEMENT III. (Paulino Scolari, bishop of Præneste) was elected Pope in December, 1187, and died in March, 1191. He succeeded shortly after his accession in allaying the discords which had prevailed for half a century between the Popes and the citizens of Rome, in virtue of an agreement by which the latter were allowed to elect their magistrates, while the nomination of the governor of the city remained in the hands of the Pope. He incited Henry II. of England and Philip Augustus to undertake the third crusade, and introduced several minor reforms in ecclesiastical matters.

CLEMENT IV. (Gui Foulques, archbishop of Narbonne) was elected Pope in February, 1265. Before taking orders he had been successively a soldier and a lawyer, and in the latter capacity had acted as secretary to Louis IX. of France, to whose influence he was chiefly indebted for his elevation. At this time the Holy See was engaged in a conflict with Manfred, the usurper of Naples; and Clement, whose election had taken place in his absence, was compelled to repair to Italy in disguise. He immediately took steps to ally himself with Charles of Anjou, the French pretender to the Neapolitan throne, who marched into Naples, and having defeated and slain Manfred in the great battle of Benevento, established himself firmly in the kingdom. Clement is said to have disapproved of the cruelties

committed by Charles, and there seems no foundation for the charge of his having advised the latter to execute the unfortunate Conradin, the last of the church's hereditary antagonists of the house of Hohenstaufen. His private character was unexceptionable, and he is especially commended for his indisposition to promote and enrich his own relatives. He also did himself great honor by his encouragement and protection of Roger Bacon. He died in November, 1268, and was buried at Viterbo, where he had resided throughout his pontificate.

CLEMENT V. (Bertrand de Goth, archbishop of Bordeaux) is memorable in history for his suppression of the order of the Templars, and as the Pope who removed the seat of the Roman See to Avignon. He was elected in June, 1305, after a year's interregnum, occasioned by the disputes between the French and Italian cardinals, who were nearly equally balanced in the conclave. According to Villani, he had bound himself to subserviency toward the French monarch by a formal agreement previous to his elevation; however this may be, it is unquestionable that he conducted himself throughout his pontificate as the mere tool of that monarch. His first act was to create nine French cardinals. The removal of the seat of the papacy to Avignon (1308) might seem palliated by the factious and tumultuous condition of Rome at the period, but it proved the precursor of a long "Babylonish captivity," in Petrarch's phrase, and marks the point from which the decay of the strictly Catholic conception of the Pope as universal bishop is to be dated. The guilt or innocence of the Templars is one of the most difficult of historical problems, the discussion of which belongs, however, to the history of the order. Clement may have acted conscientiously in his suppression of an order which had heretofore been regarded as a main bulwark of Christianity, but there can be little doubt that his principal motive was complaisance towards the king of France, or that the latter was mainly actuated by jealousy and cupidity. Clement's pontificate was also disastrous for Italy. The Emperor Henry VII. entered the country, established the Visconti in Milan, and was crowned by Clement's legates in Rome, but was unable to maintain himself there, and died suddenly, leaving great part of Italy in a condition of complete anarchy. The dissensions of the Roman barons reached their height, and the Lateran palace was destroyed in a conflagration. Other remarkable incidents of Clement's reign are his sanguinary repression of the heresy of Fra Dolcino in Lombardy and his promulgation of the Clementine Constitutions in 1313. He died, leaving an inauspicious character for nepotism, avarice, and cunning, in April, 1314. He was the first Pope who assumed the triple crown.

CLEMENT VI. (Pierre Roger, archbishop of Rouen), the fourth of the Avignon popes, was elected in May, 1342. Like his immediate predecessors, he was devoted to France, and he further evinced his French sympathies by refusing a solemn invitation to return to Rome, and by purchasing the sovereignty of Avignon from Joanna, queen of Naples, for 80,000 crowns. The money was never paid, but Clement may have deemed that he gave the queen a full equivalent by absolving her from the murder of her husband. The other chief incidents of his pontificate were his disputes with Edward III. of England on account of the latter's encroachments on ecclesiastical jurisdiction, his excommunication of the Emperor Louis of Bavaria, his negotiations for reunion with the Eastern Church, and the commencement of Ricni's agitation at Rome. He died in December, 1352, leaving the reputation of "a fine gentleman, a prince munificent to profusion, a patron

of the arts and learning, but no saint" (Gregorovius; see also Gibbon, chap. 66).

CLEMENT VII. (Giulio de' Medici), the most unfortunate of the Popes, was the son of Giuliano de' Medici, assassinated in the conspiracy of the Pazzi, and consequently nephew of Lorenzo the Magnificent and cousin of Pope Leo X. Upon the latter's accession to the Papacy, Giulio became his principal minister and confidant, especially in the maintenance of the Medici interest at Florence. At Leo's death, Cardinal Medici, though unable to gain the Papacy for himself or his ally Farnese, took a leading part in determining the unexpected election of Adrian V., to whom he succeeded in the next conclave (November, 1523). He brought to the Papal throne a high reputation for political ability, and possessed in fact all the accomplishments of a wily diplomatist, but the circumstances of the times required a man of far different mould.

His worldliness and lack of insight into the tendencies of his age disqualified him from comprehending the great religious movement which then convulsed the church; while his timidity and indecision no less disabled him from following a consistent policy in secular affairs. At first attached to the imperial interest, he was terrified by the overwhelming success of the emperor in the battle of Pavia into joining the other Italian princes in a league with France. This policy in itself was sound and patriotic, but Clement's zeal soon cooled; by his want of foresight and unseasonable economy he laid himself open to an attack from the turbulent Roman barons which obliged him to invoke the mediation of the emperor. When this danger seemed over he veered back to his former engagements, and ended by drawing down upon himself the host of the imperialist general, the Constable Bourbon, who, compelled to satisfy his clamorous mercenaries by pillage, embraced the opportunity of leading them against Rome. The city was assaulted and sacked on May 5, 1527, and Clement, who had displayed no more resolution in his military than in his political conduct, was shortly afterwards obliged to surrender himself together with the castle of St. Angelo, where he had taken refuge. After six months' captivity he was released upon very onerous conditions, and for some years subsequently followed a policy of subserviency to the emperor, endeavoring on the one hand to induce him to act with severity against the Lutherans in Germany, and on the other to elude his demands for a general council. One momentous consequence of this dependence on Charles V. was the breach with England occasioned by Clement's refusal, justifiable in point of principle, but dictated by no higher motive than his fear of offending the emperor, to sanction Henry VIII.'s divorce from Catherine of Aragon. Towards the end of his reign Clement once more gave indications of a leaning towards a French alliance, which was prevented by his death in September, 1534. As a man he possessed few virtues and few vices; as a pontiff he did nothing to disgrace the church and nothing to restore its lustre; his adroitness and dexterity as a statesman were counteracted by his suspicion and irresolution; his administration affords a proof that at eventful crises of the world's history mediocrity of character is more disastrous than mediocrity of talent.

CLEMENT VIII. (Ippolito Aldobrandini) was elected in January, 1592. The most remarkable event of his reign was the reconciliation to the church of Henry IV. of France after long negotiations carried on with great dexterity by Cardinal D'Ossat. Europe is principally indebted to this Pope for the peace of Vervins (1598), which put an end to the long contest between France and Spain. Clement also annexed Ferrara to the States of the Church upon the failure of the line of Este, the

last addition of importance to the Pope's temporal dominions. The execution of Giordano Bruno, February 17, 1600, is a blot upon an otherwise exemplary pontificate. Clement was an able ruler and a sagacious statesman, the general object of whose policy was to free the Papacy from its undue dependence upon Spain. The conferences to determine the questions of grace and free will, controverted between the Jesuits and Dominicans, were commenced under him, but he wisely abstained from pronouncing a decision. He died in March, 1605, leaving a high character for prudence, munificence, and capacity for business. His reign is especially distinguished by the number and beauty of his medals.

CLEMENT IX. (Giulio Rospigliosi) was elected Pope in June, 1667. Nothing remarkable occurred under his short administration beyond the temporary adjustment of the disputes between the Roman See and those prelates of the Gallican church who had refused to join in condemning the writings of Jansenius. He died in December, 1669.

CLEMENT X. (Emilio Altieri) was elected in April, 1670, at the age of eighty. His years and infirmities led him to devolve the charge of the government upon his nephew, Cardinal Altieri, whose interference with the privileges of ambassadors occasioned disputes in which the Pope was obliged to yield. Little else of importance occurred during his reign, which terminated in July, 1676.

CLEMENT XI. (Giovanni Francesco Albani) was elevated to the pontificate in November, 1700, and died in March, 1721. The most memorable transaction of his administration was the publication in 1713 of the bull *Unigenitus*, which so greatly disturbed the peace of the Gallican church. By this famous document 101 propositions extracted from the works of Quesnel were condemned as heretical, and as identical with propositions already condemned in the writings of Jansenius. The resistance of many French ecclesiastics and the refusal of the French parliaments to register the bull led to controversies extending through the greater part of the eighteenth century. Another important decision of this Pope's was that by which the Jesuit missionaries were forbidden to take a part in idolatrous worship, and to accommodate Christian language to pagan ideas under plea of conciliating the heathen. The political troubles of the time greatly embarrassed Clement's relations with the leading Catholic powers, and the moral prestige of the Holy See suffered much from his compulsory recognition of the Archduke Charles of Austria as king of Spain. His private character was irreproachable; he was also an accomplished scholar, and a patron of letters and science.

CLEMENT XII. (Lorenzo Corsini) was Pope from July, 1730, to February, 1740. His first act was the trial and condemnation of Cardinal Coscia, guilty of malversation under his predecessor. Nothing else of importance occurred under his administration, during the greater part of which, according to some historians, he was afflicted with blindness. He was the first pontiff who condemned the Freemasons.

CLEMENT XIII. (Carlo Rezzonico, bishop of Padua) was elected in July, 1758. Notwithstanding the meekness and affability of his character, his pontificate was disturbed by perpetual contentions respecting the investiture of Parma, and subsequently by the demands of France, Spain, and Portugal for the suppression of the Jesuits. Clement warmly espoused the cause of the order in an apostolical brief issued in 1765. The pressure put upon him by the Catholic powers, however, was so strong that he seemed about to give way, when, having convoked a consistory to receive his decision. He

died suddenly, February 3, 1769, not without suspicion of poison.

CLEMENT XIV. (Giovanni Vincenzo Antonio Ganganelli), the best and most calumniated of the popes, was born in 1705, and was originally a Franciscan monk. Having acquired a great reputation as a preacher, he became the friend and confidant of Pope Benedict XIV., and was created a cardinal by his successor. He was elected Pope on May 19, 1769, after a conclave extremely agitated by the intrigues and pretensions of the Catholic sovereigns, who were resolved to exclude every candidate favorable to the Jesuits. The breach between the temporal and the spiritual authorities had become threatening, and the guiding principle of Clement's policy was undoubtedly the reconciliation of the European sovereigns, whose alienation threatened to produce the results which we have seen accomplished in our own times. By yielding the Papal pretensions to Parma, he obtained the restitution of Avignon and Benevento, and in general he succeeded in placing the relations of the spiritual and the temporal authorities on a satisfactory footing. Whether from scruple or policy he proceeded with great circumspection in the suppression of the Jesuits, the decree to this effect not being framed until November, 1772, and not signed until July in the following year. This memorable measure, which takes rank in history as the most remarkable, perhaps the only really substantial, concession ever made by a Pope to the spirit of his age, has covered Clement's memory with obloquy in his own communion. There cannot be any reasonable doubt of the integrity of his conduct, and the only question is whether he acted from a conviction of the pernicious character of the Society of Jesus, or merely from a sense of expediency. In either case his action was abundantly justified, and to allege that though beneficial to the world it was detrimental to the church is merely to insist that the interests of the Papacy are not the interests of mankind. His work was hardly accomplished ere Clement, whose natural constitution was exceedingly vigorous, fell into a languishing sickness, generally and plausibly attributed to poison. No conclusive evidence of this, however, has been produced; and it is but just to remark that poison would more probably have been administered before the obnoxious measure had been taken than when it was already beyond recall. Clement expired on September 22, 1774, execrated by the Ultramontane party, but regretted by his subjects for his excellent temporal administration. No Pope has better merited the title of a virtuous man, or has given a more perfect example of integrity, unselfishness, and aversion to nepotism. Notwithstanding his monastic education, he approved himself a statesman, a scholar, an amateur of physical science, and an accomplished man of the world.

CLEMENT, FRANÇOIS (1714-1793), a French historian, was born at Brézé, near Dijon.

CLEMENTI, MUZIO (1752-1832), an Italian pianist and composer, was born at Rome in 1752. His father, a jeweler, encouraged his son's musical talent, which was evinced at a very early age. Buroni and Cordicelli were his first masters, and at the age of nine Clementi's theoretical and practical studies had advanced to such a degree that he was able to compete successfully for the position of organist at a church. He continued his contrapuntal studies under Carpinì, and at the age of fourteen wrote a mass which was performed in public and excited universal admiration. About this time Beckford, the author of *Vathek*, persuaded Clementi to follow him to England, where the young composer lived in retirement at one of the country seats of his protector in Dorsetshire up to 1770. In that year he first

appeared in London, where his success both as a composer and pianist was rapid and brilliant. In 1777 he was for some time employed as conductor of the Italian opera, but he soon afterwards left London for Paris. Here also his concerts were crowded by enthusiastic audiences, and the same success accompanied Clementi on an artistic tour to Southern Germany and Austria which he undertook about 1780. At Vienna he was received with high honor by the Emperor Joseph II., in whose presence he met Mozart, and sustained a kind of musical duel with him. His technical skill proved to be equal if not superior to that of his great rival, who on the other hand infinitely surpassed him by the passionate beauty of his rendering. Such seems to have been the opinion of most of the witnesses of this remarkable meeting, and it is confirmed to some extent by the two musicians themselves.

Apropos of the connection of these great men the fact may be mentioned that one of the finest of Clementi's sonatas, that in B flat, shows an exactly identical opening theme with Mozart's overture to the *Flauto Magico*, also that at the concert given by the Philharmonic Society in commemoration of Clementi's death, the German composer's *Recordare* was the chief item of the programme. Soon after his meeting with Mozart, Clementi returned to London, where he continued for the next twelve years his lucrative occupations of fashionable teacher and performer at the concerts of the aristocracy. He also started a pianoforte manufacturing firm of his own, and the commercial shrewdness characteristic of his nation greatly contributed to the lasting success of the business. Among his pupils on the pianoforte during this period may be mentioned John Field, the composer of the celebrated *Nocturnes*. In his company Clementi paid, in 1804, a prolonged visit to the large cities of the Continent, including Paris, Vienna, St. Petersburg, and Berlin. At the Prussian capital he made a prolonged stay, and there counted Meyerbeer among his pupils. He also revisited his own country after an absence of more than thirty years. In 1810 Clementi returned to London, but refused to play again in public, devoting the remainder of his life to composition. Several symphonies belong to this time, and were played with much success at contemporary concerts, but none of them seem to have been published. His intellectual and musical faculties remained unimpaired up to his death, which took place at Evesham, Worcestershire, March 9, 1832. Clementi has been called the "father of pianoforte playing," and it cannot be denied that the modern style of execution owes a great deal to his teaching and example.

CLEOBULUS, one of the Seven Sages, was son of Evagoras, and a native of Lindus, which town he ruled, though whether as monarch or as head of a republic is uncertain. He was distinguished for his strength and his handsome person, for the wisdom of his sayings, the acuteness of his riddles, and the beauty of his lyric poetry. Diogenes Laertius quotes a letter in which Cleobulus invites Solon to take refuge with him against Pisistratus; and this would imply that he was alive in 560 B.C. He is said to have held advanced views as to female education, and he was the father of the wise Cleobuline, whose riddles were not less famous than his own.

CLEOMENES, the name of three kings of Sparta, the 16th, 25th, and 31st of the Agid line. The second of these does not call for particular notice.

CLEOMENES I. succeeded as one of the two joint kings about 519 B.C. He led a Spartan force to Athens in 510 to aid the Alcmaeonids and their followers in the expulsion of Hippias. He was called in subsequently to support the oligarchical party there, headed by Isa-

goras, against the party of Clisthenes. He forcibly expelled from the city, on a technical charge of pollution, no less than 7,000 families, and established an entirely new constitution, transferring the government from the old senate to 300 of the oligarchical party. Eventually, however, he and his small force were blockaded by their opponents in the Acropolis, and forced to capitulate and to quit the city. On his return home he at once raised a force of Spartans and allies in order to avenge his failure, and to establish a despotism at Athens in the person of Isagoras. But when the expedition had reached Eleusis on its march, not only some of the subject-allies but also his brother-king Demaratus (of the Proclid junior branch) refused to proceed further, and he had to return without effecting his object. When the Ionian colonies revolted from Persia, in 500, their leader Aristagoras came to seek aid from Sparta. Cleomenes was at first inclined to entertain the tempting offers of Asiatic conquest which the Ionian, in his eagerness to secure the alliance, laid before him. But when Aristagoras, in reply to his questions, was forced to confess that Susa, the Persian capital, was no less than three months' journey inland from the sea, the king was startled, and bade his visitor quit Sparta before sunset. The Ionian then tried to bribe him; and as his offers mounted higher and higher, his little daughter Gorgo, some eight or nine years old (afterward the wife of Leonidas) said, "Father, go away, or the stranger will corrupt you."

During a local war between Sparta and Argos, Cleomenes by a stratagem defeated the Argive forces near Tiryns. Those who escaped from the battle took refuge in a consecrated grove, which was set on fire by order of Cleomenes, and no less than 6,000 men, the flower of the Argive citizens, are said either to have been killed in the battle, or to have perished in the flames,—a loss from which Argos was very long in recovering.

When Darius (491) sent heralds to demand the submission of all the Greeks, and the inhabitants of Ægina had consented to give the tributary "earth and water," Cleomenes proceeded to the island to punish its treachery to the national cause. His fellow-king Demaratus, who was always jealous of him, privately encouraged the Æginetans in their resistance, and the feud between the two became so bitter, that Cleomenes brought up an old charge of illegitimacy against his colleague, and succeeded in driving him into exile. Retributive fate very soon overtook himself; he was convicted of having procured the deposition of Demaratus by tampering with the priestess of the Delphian oracle, and had to retire for safety into Thessaly, and thence into Arcadia. There he endeavored to raise war against his countrymen, who in their alarm were weak enough to recall him. His renewed reign was not long. He soon after showed symptoms of madness, attacking violently with his staff those who came to him for audience. Some attributed this derangement to a habit of hard drinking which had grown upon him; others saw in it the just punishment of his impiety, both in his intrigues with the oracle at Delphi, and in the burning of the sacred grove at Argos and the massacre of those who had taken sanctuary there. At length he had to be placed in close confinement, when he persuaded the slave who had charge of him to bring him a knife, with which he deliberately slashed himself to pieces.

CLEOMENES III., the last of the Agid line, succeeded 240 B.C.,—a king of strong and determined character, who wished to restore at Sparta the old constitution and discipline of Lycurgus, and to destroy the Achæan League. He met Aristomachus, the "captain" of the League, with a force of 5,000 men against 25,000 at Palantium, but the Achæans, even with this advantage,

declined the engagement. The next year he defeated them in a great battle at the foot of Mount Lycæum. He found active opponents at Sparta in the Ephors, whose anomalous authority he held to have been gradually usurped in derogation of the royal prerogative, affecting dangerously the independence of the kings, and which it was therefore his great object to crush. He succeeded in this at last by an unscrupulous *coup d'état*, surrounding the hall in which the Ephors were feasting with a body of armed mercenaries, and slaughtering them on the spot. He met with no resistance from the panic-stricken citizens, and at once proceeded to inaugurate his new constitution, abolishing the Ephorate entirely, restoring the old prerogatives of the kings, and amongst other reforms making a re-distribution of lands, and extending the franchise.

He had still to contend with the Achæan League for the supremacy of Greece. In the war which ensued he was finally defeated by Antigonus of Macedonia, who had become virtually the master of the League, in the battle of Sellasia (222), when the death-blow was given to the independence of Sparta. Cleomenes took refuge in Egypt with Ptolemy Euergetes, who received him kindly. But the succeeding Ptolemy neglected and even imprisoned him. He escaped and attempted to head an insurrection against the king, failing in which, he committed suicide.

CLEON, one of those popular leaders who rose to great temporary influence at Athens during the Peloponnesian War, and especially after the death of Pericles. He was emphatically a man of the people, sprung from their own ranks, his father Cleænetus having been a tanner or leather-dresser. He possessed considerable ability and was a powerful public speaker, though coarse and violent in manner and language. At first he seems to have formed one of the large party at Athens who protested against the policy of the war, and on that ground became a bitter opponent of Pericles. But his views must afterward have changed, since we find him repeatedly urging active warlike measures in opposition to the peace party of which Nicias and others were the representatives. He was at the height of his political influence when in 427 B.C. the revolted citizens of Mitylene, after a long siege, submitted to the Athenian forces, and the question of their punishment was discussed in a public assembly. Cleon proposed and carried, though against strong opposition, the terrible decree that all the males who were able to bear arms should be put to death, and the women and children sold for slaves. However, in a second assembly held next day, the decree was rescinded in spite of Cleon's remonstrances. A vessel hastily dispatched was barely in time to stay its execution. Even as it was, a thousand of those who were considered the ringleaders of the revolt were put to death. But it was perhaps fortunate for Cleon's future influence with the Athenian commons that he had not to bear the odium of a cruelty which they might have bitterly repented. He was hated at all times by the aristocracy of Athens, and on one occasion they succeeded in convicting him of something like extortion of money from certain of the islanders who were subject to the Athenian rule. In 425, the seventh year of the war, he achieved his greatest military and political triumph. The Athenians had succeeded in cutting off from their ships and supplies a strong detachment of Lacedæmonian infantry, and blockading them in the small island of Sphacteria, off Pylos (the modern Navarino). At first it seemed that they must speedily surrender; Cleon persuaded the Athenians to dictate, as the price of their release, hard conditions of peace, which the Lacedæmonians rejected. Time wore on, and the Lacedæmonians still held out, while the blockade

was maintained with great difficulty and hardship. Then Cleon came forward, and publicly declared that if *he* were general, he would undertake to bring the men who were on the island prisoners to Athens, dead or alive, within twenty days. Nicias, who at that time held the command-in-chief, anxious probably to discredit a political opponent, offered to take him at his word, and make over to him the command at Pylos. Cleon's own party were loud in their encouragements; and willingly or unwillingly, after obtaining a strong reinforcement of troops, and getting Demosthenes, an able general then employed on the station, joined with him in the command, he set out for the scene of operations. The historian Thucydides calls his boast "insane," but admits that he fulfilled it. Within the days named he landed on the island of Sphacteria, compelled the Lacedæmonian force there, after great loss, to surrender at discretion, and brought 300 prisoners to Athens. It is very probable that much of the credit was due to the skilful dispositions of Demosthenes, his colleague in command of the forces; but nevertheless, the man who dared and succeeded where others had so long failed must have had a well-grounded confidence in his own energy and resources. He did not long enjoy his new glories. Two years afterward he was sent to act against Brasidas, the Lacedæmonian commander in Thrace, and to attempt the reconquest of Amphipolis. At first he was successful; he took Torone, and made an advance upon Amphipolis; but a sudden sally of Brasidas from the town utterly routed the Athenian forces, and Cleon fell there with half his men. Brasidas was at the same time mortally wounded.

CLEOPATRA, the name of several Egyptian princesses of the house of the Ptolemies. The best known was the daughter of Ptolemy Auletes, born 69 B.C. Her father left her, at the age of seventeen, heir to his kingdom jointly with her younger brother Ptolemy, whose wife, in accordance with Egyptian custom, she was to become. A few years afterwards her brother, or rather her guardians, deprived her of all royal authority. She withdrew into Syria, and there made preparation to recover her rights by force of arms. It was at this juncture that Julius Cæsar followed Pompey into Egypt, resolved to settle there, if possible, the existing dispute as to the throne. The personal fascinations of Cleopatra, which she was not slow in bringing to bear upon him, soon won him entirely to her side; and as Ptolemy and his advisers still refused to admit her to a share in the kingdom, Cæsar undertook a war on her behalf, in which Ptolemy lost his life, and she was replaced on the throne in conjunction with a younger brother, to whom she was also contracted in marriage. Her relations with Cæsar were matter of public notoriety, and soon after his return to Rome she joined him there, in company with her boy-husband (of whom, however, she soon rid herself by poison), but living openly with her Roman lover, somewhat to the scandal of his fellow-citizens. After Cæsar's assassination, aware of her unpopularity, she returned at once to her native country. But subsequently, during the civil troubles at Rome, she took the part of Antony, on whom she is said to have already made some impression in her earlier years, when he was campaigning in Egypt. When he was in Cilicia, she made a purpose journey to visit him, sailing up the Cydnus in a gorgeously-decked galley, arrayed in all the attractive splendor which Eastern magnificence could bring in aid of her personal charms. Antony became from that time forth her infatuated slave, followed her to Egypt, and lived with her there for some time in the most profuse and wanton luxury. They called themselves "Osiris" and "Isis," and claimed to be re-

garded as divinities. His marriage with Octavia broke this connection for a while, but it was soon renewed, and Cleopatra assisted him in his future campaigns both with money and supplies. This infatuation of his rival with a personage already so unpopular at Rome as Cleopatra, was taken advantage of by Octavianus Cæsar (Augustus), who declared war against her personally. In the famous sea fight at Actium, between the fleets of Octavianus and Antony, Cleopatra, who had accompanied him into action with an Egyptian squadron, took to flight while the issue was yet doubtful, and though hotly pursued by the enemy succeeded in escaping to Alexandria, where she was soon joined by her devoted lover. When the cause of Antony was irretrievably ruined, and all her attempts to strengthen herself against the Roman conqueror by means of foreign alliances had failed, she made overtures of submission. Octavianus suggested to her, as a way to his favor, the assassination of his enemy Antony. She seems to have entertained the base proposal,—enticing him to join her in a mausoleum which she had built, in order that "they might die together," and where he fulfilled his part of the compact by committing suicide, in the belief that she had already done so. The charms which had succeeded so easily with Julius and with Antony failed to move the younger Cæsar, though he at once granted her an interview; and rather than submit to be carried by him as a prisoner to Rome, she put an end to her life—by applying an asp to her bosom, according to the common version of the story—in the thirty-ninth year of her age. With her ended the dynasty of the Ptolemies in Egypt. Besides her remarkable charms of person, she had very considerable abilities, and unusual literary tastes. She is said to have been able to converse in seven languages. She had three children by Antony, and, as some say, a son, called Cæsarion, by Julius Cæsar.

CLEPSYDRA (from *κλέπτειν*, to steal, and *ὕδωρ*, water), the chronometer of the Greeks and Romans, which measured time by the flow of water. In its simplest form it was a short-necked globe of known capacity, pierced at the bottom with several small holes, through which the water placed in it escaped or stole away. The instrument was employed to set a limit to the speeches in courts of justice, hence the phrases *aquam dare*, to give the advocates speaking time, and *aquam perdere*, to waste time; it was also very generally used instead of the sun-dial.

CLERC, LE. See LECLERC.

CLERGY, a collective term signifying the body of "clerks," that is, in English, men in holy orders. *Clericus*, however, has, both itself and its equivalents in the languages of the Catholic countries of the Continent, a wider ecclesiastical signification; while in England a use of the word, originally abusive, but now so entirely accepted as to constitute a proper secondary meaning of the term, comprises in the class of persons signified by it all those employed in duties the discharge of which demands the acquirements of reading and writing, which were originally supposed to be the exclusive qualification of the clergy.

The word is derived from the Greek *klēros*, which signifies a lot; but the authorities are by no means agreed in which sense the root is connected with the sense of the derivative, some conceiving that the original idea was that the clergy received the service of God as their lot or portion; others that they were the portion of the Lord; and others again, with, as Bingham seems to think, more reason, maintain that the word has reference to the choosing by lot, as was the case in early ages, of those to whom public offices were to be entrusted.

In the primitive times of the church the term canon was used as synonymous with clerk, from the names of all the persons in the service of any church having been inscribed on a roll or *kanōn*, whence they were termed *canonici*, a fact which shows that the practice of the Roman Catholic Church in modern times of including all persons of all ranks in the service of the church, ordained or unordained, in the term clerks, or clergy, is at least in conformity with the practice of antiquity. The Roman hierarchy now reckons four grades of clerks:—1st, those who are merely tonsured as a sign of the ecclesiastical destination, but have received no orders of any kind; 2d, those who have received any of the four minor orders, as *hostiarii*, readers, exorcists, or acolytes; 3d, those who have received orders as subdeacons, deacons or priests; 4th, those who have been consecrated to bishoprics, archbishoprics, or other of the higher dignities of the church. Monks, whether eremitic or cœnobite, have not at any time formed as such any part of the body of the clergy. But it would seem that in the earliest ages of the church they were not deemed even eligible to the priesthood, inasmuch as it is said that St. Siricius, who became Pope in the year 384, first permitted them to receive priests' orders. And we read in the epistles of St. Ambrose that monks began to be ordained priests toward the end of the fourth century,—St. Athanasius having been the first who ordained monks to the church of Alexandria, in which course he was imitated in the West by St. Eusebius, bishop of Vercelli.

CLERGY, BENEFIT OF, an obsolete, but once very important, feature in the English criminal law. It was a relic of the claim of exemption from the authority of the common law tribunals on the part of the clergy, and marked the extent to which the demand was acceded to in England. The conclusion of the protracted conflict was that the common law courts abandoned the extreme punishment of death assigned to some offenses, when the person convicted was a *clericus*, in holy orders, and the church was obliged to accept the compromise and let a secondary punishment be inflicted.

CLERMONT, or CLERMONT FERRAND, a city of France, formerly the chief town of Basse Auvergne, and now of the department of Puy-de-Dôme, is situated on a hill composed chiefly of volcanic tufa, in the fertile district of Limagne, and surrounded on the S. and W. by a line of mountains, of which the Puy-de-Dôme is the culminating point. Since 1633 it is composed of the two towns of Clermont and Mount Ferrand, connected by a fine avenue of walnut trees and willows, two miles in length. The population of Clermont is 32,963.

Clermont (*i. e.*, Clarus Mons or Clarimontium) is identified with the ancient Augustonemetum, the chief town of the Arverni, and it still preserves some remains of the Roman period.

CLERMONT EN BEAUVOISIS, frequently but by mistake called CLERMONT SUR OISE, a town of France, at the head of an arrondissement in the department of Oise, is situated about thirty-six miles by rail to the north of Paris, near a small tributary of the Oise, called the Brèche.

CLERMONT-L'HÉRAULT, or CLERMONT DE LODÈVE, a town of France, in the department of Hérault, and about ten miles by rail south of Lodève, is built on the slope of a hill which is crowned by an ancient castle and skirted by the Ydromiel, a tributary of the Ergue or Lergue. Population, in 1872, 5,487.

CLEVELAND, a port of entry and capital of Cuyahoga county, Ohio, second only to Cincinnati in size and importance among the cities of the state, is situated on the south shore of Lake Erie at the mouth of the Cuyahoga river. Settled in 1796 by Gen. Moses

Cleveland, of the Connecticut Land Company, Cleveland's growth has been rapid since it received its first impetus—the completion in 1834, of the Ohio canal, which extends from the Cuyahoga to the Ohio river.

In 1802 the population was 200; in 1830, 1,075; 1850, 17,034; 1860, 43,417; 1870, 92,829; 1880, 160,146; and in 1890, 261,546. About one-third of the inhabitants are foreign born and 3,000 are colored. The city is triangular in form, 9 miles in its greatest length, and narrowing from a width of 8 miles at its eastern boundary to one-half mile at its western limit. Two-thirds of the city are on the east side, and one-third is on the west and south sides of the river. The west side was originally a separate corporation, and known as Ohio City. The river valley, called the Flats, varies from one-half mile to two miles in width. The main portion of the city is built upon the level plains from 100 to 150 feet above the lake. The elevated portions are connected by immense bridges which cross the river valley. The most important are the Superior street, the Central and Abbey street viaducts. The first is a \$2,500,000 stone structure, 3,211 feet long, connecting the east and west sides. The others are of iron framework. The Central connects the east and south sides, and the Abbey street the south and west sides. On the Flats the river is crossed by numerous drawbridges. The streets are laid out with reasonable regularity, well lighted with electric, gas and vapor lights, and paved with stone and brick. The completeness of the sidewalks is remarkable. With few exceptions they are formed of sawed flagstones. Its great number of fine shade trees has given Cleveland its well-known title, of the "Forest City." In the center of the east side business portion is the Public Square, a carefully kept park of ten acres divided into four sections by Superior, the main business street, and Ontario street. The square is well planted with trees and contains a structure for public speaking, artillery pieces of historical fame, fountains, a bronze statue of Gen. Moses Cleveland, and one in marble of Commodore Perry, whose great victory during the war of 1812 was won on Lake Erie near Cleveland. Wade Park, containing seventy-five acres, Franklin Avenue Circle and Pelton Park are among the other public grounds. Cleveland has twenty cemeteries; Lake View contains the tomb and memorial of General Garfield. Euclid Avenue, extending for five miles within the corporation limits, is the finest residence street. The sewer system is complete. The water supply is obtained from the lake through a tunnel, and pumped into large reservoirs, producing a uniform pressure throughout the city. Five systems of street cars, electric and cable power furnish one of the most complete services in the country. They extend in all directions and every line passes through the center of the city. With the Government breakwater, which forms a harbor of refuge, Cleveland's port is equal to that of any of the lake cities. The marine interests are of great importance. Immense quantities of iron ore, lumber, coal and grain are handled, besides miscellaneous cargoes. There are six ship-building concerns, producing all kinds of floating property. Seven railroads come into the city. The combined marine and railroad facilities make Cleveland an important point for nearly every line of commerce. Besides other articles, live stock, fruits, and products of the farm and dairy are shipped in great quantities. Cleveland has five regular theaters, numerous places for occasional entertainments, several large convention halls, and many fine business blocks. The Government building contains the post-office, custom house, and Federal courts. The municipi-

pal offices are in the city hall. The Masonic Temple, Young Men's Christian Association building, county court house, and Excelsior Club house (Hebrew) are all fine buildings. There are sixty-six hotels. The assessed valuation of Cleveland property is \$115,356,000 of which \$88,200,000 is realty. The city contains ten national, fourteen savings, and eleven general banks. Iron is the most important manufacturing interest and is represented by upwards of fifty plants, of which twenty-seven are foundries and six rolling mills. There are also extensive oil refineries, breweries, paint, rubber, sewing machine, and screw works, nail mills—in fact, nearly every line of manufacture has its representative. In all, ninety-two periodicals are published in Cleveland, including 6 English, 1 Bohemian, and 3 German daily newspapers. The city is governed by a mayor, a common council, and a board of directors, who rule the departments of Public Works, Law, Accounts, Fire, Police, and Charities and Corrections. The mayor, directors, and mayor's secretary form the Board of Control, which meets regularly to consult in regard to city affairs. The city has efficient health, fire, and police departments, a police court and a workhouse. A board of education conducts an excellent school system with three high and fifty-two lower grade public school buildings, and also manual training schools. Adelbert College, Case School of Applied Sciences, St. Ignatius College (Roman Catholic), and five medical colleges are among the fifty educational institutions. The public library contains 66,500 volumes; the Case Library, 27,000; and the Cleveland Law Library, 9,900. Of the 210 churches 175 are Protestant, 26 Roman Catholic, and 9 Hebrew. The city has 100 benevolent societies and 33 benevolent institutions. Among the latter are a Protestant, a Jewish, and three Catholic orphan asylums; a retreat for fallen women, and several homes for invalids and the aged. There are nine hospitals besides the City hospital, the City Infirmary, and the Northern Ohio Insane Asylum.

CLEVELAND, JOHN, (1613–1658), a poet and satirist, was born at Loughborough. Cleveland, who was more highly esteemed than Milton by his contemporaries was exceedingly popular. His serious poetry is perhaps the most extravagantly conceited in the language; his satires are more deserving, the best being the *Petition to the Lord-Protector for the Scots Rebel*. He was for some time Judge-Advocate of the royalist forces, but was deprived of his office in 1656, and was arrested as a rebel. After spending some months in prison he was released by order of Cromwell.

CLEVES (in German KLEVE) a town of Prussia, formerly the capital of the duchy of its own name, and now the chief town of a circle in the government of Düsseldorf, forty-six miles N. W. of Düsseldorf and twelve E. of Nimeguen. It is a neatly-built town in the Dutch style, situated on the declivities of three hills known as Kirchberg, Schlossberg, and Heideberg, in a fertile district near the frontiers of Holland, and about two miles from the Rhine, with which it has been connected since 1848 by a canal. The old castle of Schwanenburg (formerly the residence of the dukes of Cleves, and the birthplace of Anne of Cleves, one of the wives of Henry VIII.) has a massive tower 180 feet high, which was built in 1439 on the traditional site of Cæsar's Tower and commands an extensive view. The town was the seat of the counts of Cleves as early as the eleventh century, but it did not receive its incorporation till 1242. It was raised, with the surrounding district on both sides of the Rhine, to the rank of a duchy by the Emperor Sigismund in 1417. On the death of Duke William in 1609, without issue, his inheritance,

which also included Jülich and Berg, became the object of a violent contest between no fewer than six competitors; and it was not till 1614 that the dispute was settled by the treaty of Xanten, which assigned the duchy of Cleves to Sigismund, elector of Brandenburg, who had married a niece of the late duke. In 1805 it was ceded by Prussia to France; and in 1806 it was made a grand-duchy by Napoleon and bestowed on Murat. In 1815 it was restored to Prussia. Population, 10,000.

CLICHY, or CLICHY LA GARENNE, a village or township of France, in the department of Seine, situated on the right bank of the river, immediately to the north of the ramparts of Paris, of which it may almost be said to be part. It is the seat of a number of extensive industrial establishments, engaged in the manufacture of steam engines, chemical stuffs, and glass. The village is of high antiquity, and was the residence of some of the early kings of France. Its church was built in the 17th century under the direction of the famous Saint Vincent de Paul, who at that time had charge of the cure. Population in 1872, 14,599.

CLIFF-DWELLINGS, human abodes, constructed or excavated wholly or in part in rocks or cliffs. Many are found in Mexico, Utah and Arizona.

CLIFTON, a watering-place and fashionable resort of England, in the County of Gloucestershire, forming practically a part of the city of Bristol.

CLIMACTERIC YEAR. It was long believed that certain years in the life of man had a peculiar significance to him, and were the critical points, as it were, of his health and fortunes. The mystical number 7 and its multiples (*e. g.*, 35, 49) constituted crises of this kind. The most important of all was the sixty-third year, called by way of eminence, the "climacteric year" or "grand climacteric," which was supposed to be fatal to most men, its influence being attributed to the fact that it is the multiple of the two mystical numbers 7 and 9.

CLIMATE in its modern acceptation signifies that peculiar state of the atmosphere in regard to heat and moisture which prevails in any given place, together with its meteorological conditions generally in so far as they exert an influence on animal and vegetable life. The infinitely diversified character which climate displays may be referred to the combined operation of different causes, which are chiefly reducible to these four—distance from the equator, height above the sea, distance from the sea, and prevailing winds, which may thus be regarded as forming the great bases of the law of climate.

Of these causes which determine climate, incomparably the most potent is distance from the equator. The same sunbeam which, falling vertically, acts on a surface equal to its own sectional area is, when falling obliquely on the earth, spread over a surface which becomes larger in inverse proportion to the sine of the obliquity. Consequently less and less heat continues to be received from the sun by the same extent of surface in proceeding from the equator toward the poles; and this diminution of the heat with the increase of obliquity of incidence of the solar rays is enhanced by the circumstance that the sun's heat, being partially absorbed in its passage through the atmosphere, the absorption is greater where the obliquity is greatest, because there the mass of air to be penetrated is greatest. Hence arise the broad features of the distribution of temperature over the globe, from the great heat of equatorial regions, falling by easy gradations with increase of latitude, to the extreme cold of the poles. If the earth's surface were uniform, and its atmosphere motionless, these gradations would run everywhere parallel with the latitudes, and Ptolemy's classification of the climates of the

earth would accord with fact. But the distribution of land and water over the earth's surface and the prevailing winds bring about the subversion of what Humboldt has termed the solar climate of the earth, and present us with one of the most difficult, as certainly it is one of the most important, problems of physical science, viz., the determination of the real climates of its separate regions and localities, and the causes on which they depend.

CLIMAX, a Greek word signifying primarily a *stair*, and in rhetoric, that artifice which consists in placing before the mind of the reader or hearer a series of propositions or objects so arranged that the least forcible strikes it first, and the others rise by successive gradations in impressiveness.

CLIMBERS (*Scansores*), in ornithology, an order of birds generally characterized by having two toes before opposed by two toes behind, so as to adapt their feet in a remarkable degree for the purpose of grasping the branch of a tree or any similar object. Many have not two toes permanently directed backward, but have the power of turning one of the front toes backward at will. Some have only three toes, but yet on other accounts are unhesitatingly ranked in this order.

CLIMBING PERCH (*Anabas scandens*), the only well-ascertained species of a genus of fishes, from which the family *Anabasidæ* derives its name. It is a native of rivers and ponds in most parts of the East Indies. It is about six inches long. In general form it somewhat resembles a perch, and the resemblance is increased by the large scales and the spiny dorsal fin. That this fish climbs trees has been asserted by observers whose veracity and accuracy cannot well be questioned; yet others, who have enjoyed ample opportunity of observation, express doubt concerning this habit. There is no doubt that it often leaves pools when they are in danger of being dried up, and travels in search of water.

CLIMBING PLANTS, or CLIMBERS, are those plants which, having weak stems, seek support from other objects, chiefly from other plants, in order to ascend from the ground. Some climb by means of small, root-like processes growing from the stem, as the ivy; some by means of *cirri* or tendrils, which twine round branches of trees.

CLINTON, the capital of the county of the same name in Iowa, is situated on the west bank of the Mississippi river, about forty miles above Davenport. It is connected with the Illinois shore by an iron railroad bridge over three-quarters of a mile long. Clinton has exceptional railroad facilities, and is the seat of a large trade. The manufactures include those of paper, iron, chairs and other furniture, and there are paper mills, numerous saw mills and foundries and machine shops. The city contains three national and three other banks, a high school and several graded schools, and five newspaper offices. Grain and lumber are the principal exports. The population (1890), which is rapidly increasing, numbers 13,619.

CLINTON, a town in Worcester County, Mass., on the Nashua river, about thirty-two miles west of Boston, at the junction of several railway lines. It is the seat of extensive manufacturing activity, chiefly expended in the production of cotton cloths, woollen carpets, boots and shoes, combs, and machinery. The Lancaster mills rank as perhaps the best in the United States; and the Wire Cloth Company has the credit of being the first to weave wire by the power-loom. Population (1890), 10,424.

CLINTON, the county seat of Henry county, Mo., is situated about seventy miles southeast of Kansas City, and thirty-nine miles southwest of Sedalia, Mo. It has one national bank and three other banks, six

churches, two newspaper offices, a number of minor manufactories, and a population (1890) of 4,689.

CLINTON, DE WITT (1769-1829), an American statesman, born at Little Britain, in the State of New York, was the son of a gentleman of English extraction who served as brigadier-general in the War of Independence, and of a lady belonging to the famous Dutch family of De Witts. He was educated at Columbia College; and in 1788 he was admitted to the bar. He at once joined the Republican party, among the leaders of which was his uncle, George Clinton, governor of New York, whose secretary he became. At the same time he held the office of secretary to the board of regents of the university, and to the commissioners of fortifications. In 1797 he was elected member of the Assembly, in 1798 member of the Senate of the State of New York, and in 1801 member of the Senate of the United States. For twelve years, with two short breaks, which amounted only to three years, he occupied the position of mayor of New York. He was also again member of the Senate of New York from 1803 to 1811, and lieutenant-governor of the State from 1811 to 1813. In 1812 he became a candidate for the presidency; but he was defeated by Madison. For the next four years he devoted his time and energies to the construction of the Erie canal. Having thus recovered his popularity, in 1816 Clinton was once more chosen governor of the State; in 1819 he was reelected, and again in 1824 and 1826.

CLINTON, HENRY FYNES (1781-1852), an English classical scholar, was born at Gamston, in Nottinghamshire.

CLIO, in Grecian Mythology, the daughter of Jupiter and Mnemosyne, the mother of Hyacinthus and Hymenæus. She was the Muse of History and Epic Poetry, and was represented as bearing a half-opened roll of a book.

CLIO, a genus of shell-less Pteropodous mollusks, of which one species, *C. borealis*, is extremely abundant in the Arctic seas, and constitutes a principal part of the food of whales, so that the name whale's food is often given to it by whale-fishers.

CLIPPER is a name familiarly given to a ship built expressly for speed.

CLITHEROE, a manufacturing town and a municipal and parliamentary borough of England, in the county of Lancashire, situated not far from the Ribble, at the foot of Pendle Hills, about twenty-eight miles by railway north of Manchester. Population of the municipal borough in 1889, 8,208; of the parliamentary, 11,786.

CLITOMACHUS, a leader of the New Academy, was a Carthaginian originally named Hasdrubal, who came to Athens about the middle of the second century B.C. His works were some 400 in number; but we possess scarcely anything but a few titles. In 146 he wrote a philosophical treatise to console his countrymen after the ruin of their city. One of his works was dedicated to the Latin poet Lucilius, another to L. Censorinus, who was consul in 149 B.C.

CLITOR, a town of ancient Greece, in that part of Arcadia which corresponds to the modern eparchy of Kalavryta. It stood in a fertile plain to the south of Mount Chelmos, the highest peak of the Aroanian Mountains, and not far from a stream of its own name, which joined the Aroanius, or Katzana. In the neighborhood was a fountain, the waters of which were said to deprive those who drunk them of the taste for wine. The town was a place of considerable importance in Arcadia, and its inhabitants were noted for their love of liberty. It extended its territory over several neighboring towns, and in the Theban war fought against Orcho-

menos. As a member of the Achæan league it suffered siege at the hands of the Ætolians, and was on several occasions the seat of the federal assemblies. The ruins, which bear the common name of Palæopoli, or Old City, are still to be seen about three miles from a village that preserves the ancient designation.

CLIVE, ROBERT, Baron Clive of Plassy, in the peerage of Ireland, was the statesman and general who founded the empire of British India before he was forty years of age. Clive was born on September 29, 1725, at Styche, the family estate in the parish of Moreton-Say, Market-Drayton, Shropshire. At eighteen he was sent out to Madras as a "factor" or "writer" in the civil service of the East India Company. The detention of the ship at Brazil for nine months enabled him to acquire the Portuguese language, which he always found of use during his service in India. For the first two years of his residence he was miserable. His one solace was found in the Governor's library, where he sought to make up for past carelessness, not only by much reading, but by a course of study. He was just of age, when in 1746, Madras was forced to capitulate to Labourdonnais, during the war of the Austrian Succession. The breach of that capitulation by Dupleix, then at the head of the French settlements in India, led Clive, with others, to escape from the town to the subordinate Fort St. David, some twenty miles to the south. There Clive obtained an ensign's commission.

At this time India was ready to become the prize of the first conqueror who to the dash of the soldier added the skill of the administrator. For the forty years since the death of the emperor Aurungzebe, the power of the Great Mogul had gradually fallen into the hands of his provincial viceroys or subadars. The prize lay between Dupleix, who had the genius of an administrator, or rather an intriguer, but was no soldier, and Clive, the first of a century's brilliant succession of those "soldier-politicals," as they are called in the East. Clive successfully established British ascendancy against French influence. But his merit lies especially in the ability and foresight with which he secured for his country, and for the good of the natives, the province of Bengal. First, as to Madras and the Deccan, Clive had hardly been able to commend himself to Major Stringer Lawrence, the commander of the British troops, by his courage and skill in several small engagements, when the peace of Aix-la-Chapelle forced him to return to his civil duties for a short time. An attack of the malady which so severely affected his spirits led him to visit Bengal, where he was soon to distinguish himself. On his return he found a contest going on between two sets of rival claimants for the position of viceroy of the Deccan, and for that of nawab of the Carnatic, the greatest of the subordinate states under the Deccan. Dupleix, who took the part of the pretenders to power in both places, was carrying all before him. The British had been weakened by the withdrawal of a large force under Admiral Boscawen, and by the return home, on leave, of Major Lawrence. But that officer had appointed Clive commissary for the supply of the troops with provisions, with the rank of captain. More than one disaster had taken place on a small scale, when Clive drew up a plan for dividing the enemy's forces, and offered to carry it out himself. The pretender, Chunda Sahib, had been made nawab of the Carnatic with Dupleix's assistance, while the British had taken up the cause of the more legitimate successor, Mahomed Ali. Chunda Sahib had left Arcot, the capital of the Carnatic, to reduce Trichinopoly, then held by a weak English battalion. Clive offered to attack Arcot that he might force Chunda Sahib to raise the siege of Trichinopoly. But Madras and Fort St.

David could supply him with only 200 Europeans and 300 sepoys. Of the eight officers who led them, four were civilians like Clive himself, and six had never been in action. His force had but three field-pieces. The circumstance that Clive, at the head of this handful, had been seen marching during a storm of thunder and lightning, led the enemy to evacuate the fort, which the British at once began to strengthen against a siege. Clive treated the great population of the city with so much consideration that they helped him, not only to fortify his position, but to make successful sallies against the enemy. As the days passed on, Chunda Sahib sent a large army under his son and his French supporters, who entered Arcot and closely besieged Clive in the citadel. An attempt to relieve him from Madras was defeated. Meanwhile the news of the marvellous defense of the English reached the Mahratta allies of Mahomed Ali, who advanced to Clive's rescue. This led the enemy to redouble their exertions, but in vain. After for fifty days besieging the fort, and offering large sums to Clive to capitulate, they retired from Arcot. The brave garrison had been so reduced by the gradual failure of provisions that the sepoys offered to be content with the thin gruel which resulted from the boiling of the rice, leaving the grain to their European comrades. Of the 200 Europeans forty-five had been killed, and of the 300 sepoys thirty had fallen, while few of the survivors had escaped wounds. In India, we might say in all history, there is no parallel to this exploit of 1751 till we come to the siege of Lucknow in 1857. Clive, now reinforced, followed up his advantage, and Major Lawrence returned in time to carry the war to a successful issue. In 1754 the first of the Carnatic treaties was made provisionally, between Mr. T. Saunders, the Company's resident at Madras, and M. Godeheu, the French commander, in which the English protégé, Mahomed Ali, was virtually recognized as nawab, and both nations agreed to equalize their possessions. When war again broke out in 1756, and the French, during Clive's absence in Bengal, obtained successes in the northern districts, his efforts helped to drive them from their settlements. The Treaty of Paris in 1763 formally confirmed Mahomed Ali in the position which Clive had won for him. Two years after, the Madras work of Clive was completed by a firman from the emperor of Delhi, recognizing the British possessions in Southern India.

The siege of Arcot at once gave Clive a European reputation. Pitt pronounced the youth of twenty-seven who had done such deeds, a "heaven-born general," thus endorsing the generous appreciation of his early commander, Major Lawrence. When the Court of Directors voted him a sword worth £700, he refused to receive it unless Lawrence was similarly honored. He left Madras for home, after ten years absence, early in 1753, but not before marrying Miss Margaret Maskelyne, the sister of a friend, and of one who was afterward well known as astronomer royal. All his correspondence proves him to have been a good husband and father, at a time when society was far from pure, and scandal made havoc of the highest reputations. After he had been two years at home the state of affairs in India made the directors anxious for his return. He was sent out in 1756, as governor of Fort St. David, with the reversion of the government of Madras, and he received the commission of lieutenant-colonel in the king's army. He took Bombay on his way, and there commanded the land force which captured Gheriah, the stronghold of the Mahratta pirate, Angria. In the distribution of prize money which followed this expedition he showed no little self-denial. He took his seat as governor of

Fort St. David on the day on which the nawab of Bengal captured Calcutta. Thither the Madras Government at once sent him, along with Admiral Watson. He entered on the second period of his career.

Since, in August, 1690, Job Charnock had landed at the village of Chuttanutti with a guard of one officer and thirty men, the infant capital of Calcutta had become a rich center of trade. The successive nawabs or viceroys of Bengal had been friendly to it, till, in 1756, Suraj-ud-Dowlah succeeded his uncle at Moorshedabad. His predecessor's financial minister had fled to Calcutta to escape the extortion of the new nawab, and the English governor refused to deliver up the refugee. Enraged at this, Suraj-ud-Dowlah captured the old fort of Calcutta on the 5th August, and plundered it of more than two millions sterling. Many of the English fled to the ships and dropped down the river. The 146 who remained, were forced into "the Black Hole" in the stifling heat of the sultriest period of the year. Only twenty-three came out alive. The fleet was as strong, for those days, as the land force was weak. Disembarking his troops some miles below the city, Clive marched through the jungles, where he lost his way owing to the treachery of his guides, but soon invested Fort William, while the fire of the ships reduced it, on the 2d January, 1757. On the 4th February he defeated the whole army of the nawab, which had taken up a strong position just beyond what is now the most northerly suburb of Calcutta. The nawab hastened to conclude a treaty, under which favorable terms were conceded to the Company's trade, the factories and plundered property were restored, and an English mint was established. In the accompanying agreement, offensive and defensive, Clive appears under the name by which he was always known to the natives of India, Sabut Jung, or the daring in war. The hero of Arcot had, at Angria's stronghold, and now again under the walls of Calcutta, established his reputation as the first captain of the time. With 600 British soldiers, 800 sepoys, seven field-pieces and 500 sailors to draw them, he had routed a force of 34,000 men with forty pieces of heavy cannon, fifty elephants, and a camp that extended upwards of four miles in length. His own account, in a letter to the archbishop of Canterbury, gives a modest but vivid description of the battle, the importance of which has been overshadowed by Plassy. In spite of his double defeat and the treaty which followed it, the madness of the nawab burst forth again. As England and France were once more at war, Clive sent the fleet up the river against Chandernagore, while he besieged it by land. After consenting to the siege, the nawab sought to assist the French, but in vain. The capture of their principal settlement in India, next to Pondicherry, which had fallen in the previous war, gave the combined force prizes to the value of £130,000. The rule of Suraj-ud-Dowlah became as intolerable to his own people as to the English. They formed a confederacy to depose him, at the head of which was Jaffier Ali Khan, his commander-in-chief. Associating with himself Admiral Watson, Governor Drake, and Mr. Watts, Clive made a treaty in which it was agreed to give the office of souba, or viceroy of Bengal, Behar, and Orissa, to Jaffier, who was to pay a million sterling to the Company for its losses in Calcutta and the cost of its troops, half a million to the English inhabitants of Calcutta, £200,000 to the native inhabitants, and £70,000 to its Armenian merchants. Up to this point all is clear. Suraj-ud-Dowlah was hopeless as a ruler. His relations alike to his master, the mere titular emperor of Delhi, and to the people left the province open to the strongest. After "the Black Hole," the battle of Calcutta, and the treachery at Chandernagore in spite of the treaty which followed

that battle, the East India Company could treat the nawab only as an enemy. Clive, it is true, might have disregarded all native intrigue, marched on Moorshedabad, and at once held the delta of the Ganges in the Company's name. But the time was not ripe for this, and the consequences, with so small a force, might have been fatal. The idea of acting directly as rulers, or save under native charters and names, was not developed by events for half a century. The political morality of the time in Europe, as well as the comparative weakness of the Company in India, led Clive not only to meet the dishonesty of his native associate by equal dishonesty, but to justify his conduct by the declaration, years after, in Parliament, that he would do the same again. It became necessary to employ the richest Bengalee trader, Omichund, as an agent between Jaffier Ali and the English officials. Master of the secret of the confederacy against Suraj-ud-Dowlah, the Bengalee threatened to betray it unless he was guaranteed, in the treaty itself, £300,000. To dupe the villain, who was really paid by both sides, a second, or fictitious treaty was shown him with a clause to this effect. This Admiral Watson refused to sign; "but," Clive deposed to the House of Commons, "to the best of his remembrance, he gave the gentleman who carried it leave to sign his name upon it; his lordship never made any secret of it; he thinks it warrantable in such a case, and would do it again a hundred times; he had no interested motive in doing it, and did it with a design of disappointing the expectations of a rapacious man." Such is Clive's own defense of the one act which, in a long career of abounding temptations, stains his public life.

The whole hot season of 1757 was spent in these negotiations, till the middle of June, when Clive began his march from Chandernagore, the British in boats, and the sepoys along the right bank of the Hooghly. That river, above Calcutta is, during the rainy season, fed by the overflow of the Ganges to the north through three streams, which in the hot months are nearly dry. On the left bank of the Bhagarutti, the most westerly of these, 100 miles above Chandernagore, stands Moorshedabad, the capital of the Mogul viceroys of Bengal, and then so vast that Clive compared it to the London of his day. Some miles farther down is the field of Plassy, then an extensive grove of mango trees, of which enough yet remains, in spite of the changing course of the stream, to enable the visitor to realize the scene. On the 21st June Clive arrived on the bank opposite Plassy, in the midst of that outburst of rain which ushers in the southwest monsoon of India. His whole army amounted to 1,100 Europeans and 2,100 native troops, with ten field-pieces. The nawab had drawn up 18,000 horse, 50,000 foot, and fifty-three pieces of heavy ordnance, served by French artillerymen. For once in his career Clive hesitated, and called a council of sixteen officers to decide, as he put it, "whether in our present situation, without assistance, and on our own bottom, it would be prudent to attack the nawab, or whether we should wait till joined by some country power?" Clive himself headed the nine who voted for delay; Major (afterwards Sir) Eyre Coote, led the seven who counseled immediate attack. But, either because his daring asserted itself, or because, also, of a letter that he received from Jaffier Ali, as has been said, Clive was the first to change his mind and to communicate with Major Eyre Coote. One tradition, followed by Macauley, represents him as spending an hour in thought under the shade of some trees, while he resolved the issues of what was to prove one of the decisive battles of the world. Another, turned into verse by an Anglo-Indian

poet, pictures his resolution as the result of a dream. However that may be, he did well as a soldier to trust to the dash and even rashness that had gained Arcot and triumphed at Calcutta, and as a statesman, since retreat, or even delay, would have put back the civilization of India for years. When, after the heavy rain, the sun rose brightly on the 22d, the 3,200 men and the six guns crossed the river and took possession of the grove and its tanks of water, while Clive established his headquarters in a hunting lodge. On the 23d the engagement took place and lasted the whole day. Except the forty Frenchmen and the guns which they worked, the enemy did little to reply to the British cannonade which, with the Thirty-ninth Regiment, scattered the host, inflicting on it a loss of 500 men. Clive restrained the ardor of Major Kirkpatrick, for he trusted to Jaffier Ali's abstinence, if not desertion to his ranks, and knew the importance of sparing his own small force. He lost hardly a white soldier; in all twenty-two sepoys were killed and fifty wounded. His own account, written a month after the battle to the secret committee of the court of directors, is not less unaffected than that in which he had announced the defeat of the nawab at Calcutta. Suraj-ud-Dowlah fled from the field on a camel, secured what wealth he could, and came to an untimely end. Clive entered Moorshedabad, and established Jaffier Ali in the position which his descendants have ever since enjoyed, as pensioners, but have not infrequently abused.

While busy with the civil administration, the conqueror of Plassy continued to follow up his military successes. He sent Major Coote in pursuit of the French almost as far as Benares. He dispatched Colonel Forde to Vizagapatam and the northern districts of Madras, where that officer gained the battle of Condore, pronounced by Broome "one of the most brilliant actions on military record." He came into direct contact, for the first time, with the Great Mogul himself, an event which resulted in the most important consequences during the third period of his career. Shah Aalum, when Shahzada, or heir-apparent, quarreled with his father, Aalum Geer II., the emperor, and united with the viceroys of Oudh and Allahabad for the conquest of Bengal, he advanced as far as Patna, which he besieged with 40,000 men. Jaffier Ali, in terror, sent his son to its relief, and implored the aid of Clive. Major Caillaud defeated the prince's army at the battle of Sirpore, and dispersed it. Finally, at this period, Clive repelled the aggression of the Dutch, and avenged the massacre of Amboyna, on that occasion, when he wrote his famous letter, "Dear Forde, fight them immediately; I will send you the order of council to-morrow." Meanwhile he never ceased to improve the organization and drill of the Sepoy army, after a European model, and enlisted into it many Mahometans of fine physique from Upper India. He refortified Calcutta. In 1760, after four years of labor so incessant and results so glorious, his health gave way and he returned to England.

During the three years that Clive remained in England he sought a political position, chiefly that he might influence the course of events in India, which he had left full of promise. He had been well received at court, had been made Baron Clive of Plassy, in the peerage of Ireland, had bought estates, and had got not only himself but his friends returned to the House of Commons after the fashion of the time. Then it was that he set himself to reform the home system of the East India Company, and commenced a bitter warfare with Mr. Sullivan, chairman of the court of directors, whom finally he defeated. In this he was aided by the news of reverses in Bengal. Vansittart, his successor, having

no great influence over Jaffier Ali Khan, had put Kossim Ali Khan, the son-in-law, in his place in consideration of certain payments to the English officials. After a brief tenure Kossim Ali had fled, had ordered Summers, or Sumroo, a Swiss mercenary of his, to butcher the garrison of 150 English at Patna, and had disappeared under the protection of his brother, viceroy of Oudh. The whole Company's service, civil and military, had become demoralized by such gifts, and by the monopoly of the inland as well as export trade, to such an extent that the natives were pauperized, and the Company was plundered of the revenues which Clive had acquired for them. The court of proprietors, accordingly, who elected the directors, forced them, in spite of Sullivan, to hurry out Lord Clive to Bengal with the double powers of governor and commander-in-chief.

What he had done for Madras, what he had accomplished for Bengal proper, and what he had effected in reforming the Company itself, he was now to complete in less than two years, in this the third period of his career, by putting his country politically in the place of the emperor of Delhi, and preventing forever the possibility of the corruption to which the English in India had been driven by an evil system. On the 3d May, 1765, he landed at Calcutta to learn that Jaffier Ali Khan had died, leaving him personally £70,000, and had been succeeded by his son, though not before the Government had been further demoralized by taking £100,000 as a gift from the new nawab; while Kossim Ali had induced not only the viceroy of Oudh, but the emperor of Delhi himself, to invade Behar. After the first mutiny in the Bengal army, which was suppressed by blowing the Sepoy ringleaders from the guns, Major Munro, "the Napier of those times," scattered the united armies on the hard-fought field of Buxar. The emperor, Shah Aalum, detached himself from the league, while the Oudh viceroy threw himself on the mercy of the English. Clive had now an opportunity of repeating in Hindustan, or Upper India, what he had accomplished for the good of Bengal. He might have secured what are now called the Northwestern Provinces and Oudh, and have rendered unnecessary the campaigns of Wellesley and Lake. But he had other work in the consolidation of rich Bengal itself, making it a base from which the mighty fabric of British India could afterward steadily and proportionally grow. Hence he returned to the Oudh viceroy all his territory save the provinces of Allahabad and Corah, which he made over to the weak emperor. But from that emperor he secured the most important document in the whole of our Indian history up to that time, which appears in the records as "firmaun from the King Shah Aalum, granting the dewany of Bengal, Behar, and Orissa to the Company, 1765." The date was the 12th August, the place Benares, the throne an English dining-table covered with embroidered cloth and surmounted by a chair in Clive's tent. It is all pictured by a Mahometan contemporary, who indignantly exclaimed that so great a "transaction was done and finished in less time than would have been taken up in the sale of a jackass." By this deed the Company became the real sovereign rulers of thirty millions of people, yielding a revenue of four millions sterling. All this had been accomplished by Clive in the few brief years since he had avenged "the Black Hole" of Calcutta. This would be a small matter, or might even be a cause of reproach, were it not that the Company's, now the Queen's, undisputed sovereignty proved, after a sore period of transition, the salvation of these millions. The lieutenant-governorship of Bengal, with some additions since Clive's time, now contains sixty millions of people, and yields an annual revenue of twelve millions sterling, of which

eight goes every year to assist in the good government of the rest of India. But Clive, though thus moderate and even generous to an extent which called forth the astonishment of the natives, had all a statesman's foresight. On the same date, he obtained not only an imperial charter for the Company's possessions in the Carnatic also, thus completing the work he began at Arcot, but a third firman for the highest of all the lieutenancies or soubaships of the empire, that of the Deccan itself. Still so disproportionate seemed the British force, not only to the number and strength of the princes and people of India, but to the claims and ambition of French, Dutch, and Danish rivals, that Clive's last advice to the directors, as he finally left India in 1777, was this, given in a remarkable state paper but little known: "We are sensible that, since the acquisition of the dewany, the power formerly belonging to the soubah of those provinces is totally, in fact, vested in the East India Company. Nothing remains to him but the name and shadow of authority. This name, however, this shadow, it is indispensably necessary we should seem to venerate." On a wider arena, even that of the Great Mogul himself, the shadow was kept up till it obliterated itself in the massacre of English people in the Delhi palace in 1857; and the Queen was proclaimed, first, direct ruler on the 1st November, 1858, and then empress of India on the 1st January, 1877.

Having thus founded the empire of British India, Clive's painful duty was to create a pure and strong administration, such as alone would justify its possession by foreigners. The civil service was de-orientalized by raising the miserable salaries which had tempted its members to be corrupt, by forbidding the acceptance of gifts from natives, and by exacting covenants under which participation in the inland trade was stopped. Not less important were his military reforms. With his usual tact and nerve he put down a mutiny of the English officers, who chose to resent the veto against receiving presents and the reduction of batta at a time when two Mahratta armies were marching on Bengal. His reorganization of the army, on the lines of that which he had begun after Plassy, and which was neglected during his second visit to England, has since attracted the admiration of the ablest Indian officers. He divided the whole into three brigades, so as to make each a complete force, in itself equal to any single native army that could be brought against it. His one fault was that of his age and his position, with so small a number of men. He lacked a sufficient number of British artillerymen, and would not commit the mistake of his successors, who trained natives to work the guns, which were turned against the English with such effect in 1857. It is sufficient to say that Government has returned to his policy, for not a native gunner is now to be found save in a few unhealthy and isolated frontier posts.

Clive's final return to England, a poorer man than he went out, in spite of still more tremendous temptations, was the signal for an outburst of his personal enemies, exceeded only by that which the malice of Sir Philip Francis afterward excited against Warren Hastings. Every civilian, whose illicit gains he had cut off, every officer whose conspiracy he had foiled, every proprietor or director, like Sullivan, whose selfish schemes he had thwarted, now sought their opportunity. He had, with consistent generosity, at once made over the legacy of £70,000 from the grateful Jaffier Ali, as the capital of what has since been known as "the Clive Fund," for the support of invalided European soldiers, as well as officers, and their widows, and the Company had allowed 8 per cent. on the sum for an object which it was other-

wise bound to meet. Burgoyne, of Saratoga memory, did his best to induce the House of Commons, in which Lord Clive was now member for Shrewsbury, to impeach the man who gave his country an empire, and the people of that empire peace and justice, and that, as we have seen, without blot on the gift, save in the matter of Omichund. The result after the brilliant and honorable defenses of his career which will be found in Almon's *Debates* for 1773, was a compromise that saved England this time from the dishonor which, when Warren Hastings had to run the gauntlet, put it in the same category with France in the treatment of its public benefactors abroad. On a division the House, by 155 to 95, carried the motion that Lord Clive "did obtain and possess himself" of £234,000 during his first administration of Bengal; but, refusing to express an opinion on the fact, it passed unanimously the second motion, at five in the morning, "that Robert, Lord Clive, did at the same time render great and meritorious services to his country." The one moral question, the one stain of all that brilliant and tempted life—the Omichund treaty—was not touched.

Only one who can personally understand what Clive's power and services were will rightly realize the effect on him, though in the prime of life, of the discussions through which he had been dragged. We have referred to Warren Hastings's impeachment, but there is a more recent parallel. The marquis of Dalhousie did almost as much to complete the territorial area and civilized administration of British India in his eight years' term of office as Lord Clive to found the empire in a similar period. As Clive's accusers sought a new weapon in the great famine of 1770, for which he was in no sense responsible, so there were critics who accused Dalhousie of having caused that mutiny which, in truth, he would have prevented had the British Government listened to his counsel not to reduce the small English army in the country. Clive tells us his own feelings in a passage of first importance when we seek to form an opinion on the fatal act by which he ended his life. In the greatest of his speeches, in reply to Lord North, he said,— "My situation, sir, has not been an easy one for these twelve months past, and though my conscience could never accuse me, yet I felt for my friends who were involved in the same censure as myself. . . . I have been examined by the select committee more like a sheep-stealer than a member of this House." Fully accepting that statement, and believing him to have been purer than his accusers, in spite of temptations unknown to them, we see in Clive's end the result merely of physical suffering, of chronic disease which opium failed to abate, while the worry and chagrin caused by his enemies gave it full scope. This great man, who fell short only of the highest form of moral greatness on one supreme occasion, but who did more for his country than any soldier till Wellington, and more for the people and princes of India than any statesman in history, ceased to exist on the 22d November, 1774, in his fiftieth year.

CLOCKS. The origin of clock work is involved in great obscurity. Notwithstanding the statements by many writers that clocks, *horologia*, were in use so early as the ninth century, and that they were then invented by an archdeacon of Verona, named Pacificus, there appears to be no clear evidence that they were machines at all resembling those which have been in use for the last five or six centuries. But it may be inferred from various allusions to *horologia*, and to their striking spontaneously, in the twelfth century, that genuine clocks existed then, though there is no surviving description of any one until the thirteenth century. A description of one in Dover Castle with the date 1348 on it was published by the

late Admiral Smyth, P. R. A. S., in 1851, and the clock itself was exhibited going, in the scientific exhibition of 1876.

All the ornamental French clocks, and all the short "dials," as those clocks are called which look no larger than the dial, or very little, and many of the American clocks are made with springs. Indeed, we might omit the word "French" after "ornamental," for the manufacture of ornamental clocks has practically ceased in England, and the English are losing more of all branches of the horological trade yearly, as their workmen do not choose to compete with the cheaper labor of the Continent, or with the much more systematic manufacture of clocks and watches by machinery in America than exists in England, though labor is much dearer. Though this has been going on now for thirty years and more, no steps appear to have been taken to establish anything of the kind, except that watch "movements," which means only the wheels, set in the frame, are to a certain extent made by machinery in Lancashire and Coventry for the trade, who finish them in London and elsewhere. That is the real meaning of the advertisements of "machine-made watches" in England.

The French clocks have also been greatly improved within the same time, and are now, at least some of them, quite different both in construction and execution from the old-fashioned French drawing-room clock which generally goes worse than the cheapest "Dutchman," and is nearly always striking wrong, because they have the locking-plate striking work, which if once let to strike wrong, either by altering the hands or letting it run down, cannot be set right again except by striking the hours all round, which few people know how to do, even if they can get their fingers in behind the clock to do it. The Americans have a slight wire hanging down a little below the dial which can push up and so make the clock strike. All locking-plate clocks ought to have a similar provision.

There is not much use in having clocks to go more than a little over eight days (to allow the possible forgetting of a day), as a week is the easiest period to remember.

In the American clocks the pinions are all of the kind called *lantern pinions*, which have their leaves made only of bits of wire set round the axis in two collars; and, oddly enough, they are the oldest form of pinion, as well as the best, acting with the least friction, and requiring the least accuracy in the wheels, but now universally disused in all English and French house clocks.

Clocks have been contrived to wind themselves up by the alternate expansion and contraction of mercury and other fluids, under variations of temperature. Wind-mill clocks might be made still more easily, the wind winding up a weight occasionally. Water-clocks have also been made, but none of these were ever practical.

ELECTRICAL CLOCKS.

It should be understood that under this term two, or we may say three, very different things are comprehended. The first is a mere clock movement, *i. e.*, the works of a clock without either weight or pendulum, which is kept going by electrical connection with some other clock of any kind (these ought to be called *electrical dials*, not clocks); the second is a clock with a weight, but with the escapement worked by electrical connection with another clock instead of by a pendulum; and the third alone are truly *electrical clocks*, the motive power being electricity instead of gravity.

The first person who succeeded in making one clock regulate or govern others by electricity, Mr. R. L. Jones, accordingly abandoned the idea of electrical driving of one clock by another; and instead of making the electrical connection with a standard clock (whether itself an electrical one or not) drive the others, he makes it simply let the pallets or the pendulum of the subordinate clock, driven by a weight or spring, be influenced by attraction at every beat of the standard clock; and, by way of helping it, the pallets are made what is called half-dead in describing the dead escapement, except that they have no impulse faces, but the dead faces have just so much slope that they would overcome their own friction, and escape of themselves under the pressure of the clock train, except while they are held by the magnet, which is formed at every beat of the standard clock, or at every half-minute contact, if it is intended to work the dials by half-minute jumps. This plan has been extensively used for regulating distant clocks from central points. There are now many contrivances for causing clocks to keep absolute time with a centrally-located one, some of which are in use on a large scale and are applied to clocks not specially constructed and already in use.

The first electrical *clocks*, in the proper sense of the term, were invented by Mr. Bain, in 1840, who availed himself of the discovery of Oersted that a coil of insulated wire in the form of a hollow cylinder is attracted in one direction or the other by a permanent magnet within the coil, not touching it, when the ends of the coil are connected with the poles of a battery; and if the connection is reversed, or the poles changed, so that the current at one time goes one way through the coil from the - or copper plate to the + or zinc plate, and at other times the other way, the direction of the attraction is reversed.

CHURCH AND TURRET CLOCKS.

In a turret clock the friction is enormously increased by the great weight of all the parts; and the resistance of the wind, and sometimes snow, to the motion of the heads, further aggravates the difficulty of maintaining a constant force on the pendulum; and besides that, there is the exposure of the clock to the dirt and dust which are always found in towers, and of the oil to a temperature which nearly or quite freezes it all through the usual cold of winter. This last circumstance alone will generally make the arc of the pendulum at least half a degree more in summer than in winter; and inasmuch as the time is materially affected by the force which arrives at the pendulum, as well as the friction on the pallets when it does arrive there, it was formerly impossible for any turret clock of the ordinary construction, especially with large dials, to keep any constant rate through the various changes of temperature, weather, and dirt, to which it is exposed.

The introduction of the gravity escapement enabled the largest and coarsest-looking clocks with cast iron wheels and pinions to go for long periods with a variation much nearer a second a week than a second a day. And the consequence was that the price for large clocks was reduced to about one-third of what it used to be for an article inferior in performance though more showy in appearance.

The old form of turret clock-frame was that of a large iron cage, of which some of the vertical bars take off, and are fitted with brass bushes for the pivots of the wheels to run in; and the wheels of each train, *i. e.*, the striking, the going, and the quarter trains, have their pivots all in the vertical bar belonging to that part. Occasionally they advanced so far as to

make the bushes movable, *i. e.*, fixed with screws instead of riveted in, so that one wheel may be taken out without the others. This cage generally stood upon a wooden stool on the floor of the clock room. The French clock makers long ago saw the objections to this kind of arrangement, and adopted the plan of a horizontal frame or bed, cast all in one piece, and with such smaller frames or cocks set upon it as might be required for such of the wheels as could not be conveniently got on the same level.

The invention of the "gridiron" pendulum, and the change from weights to springs, were the next two grades of progress. The manufacture of clocks in the U. S. was begun before the revolution, and the ideas embodied were characteristically original. About 1792 Eli Terry made, it is alleged, the first wooden-wheel clock ever constructed. They were good, and were extensively manufactured and sold, generally without the case, that being made by the local mechanic. They continued to be manufactured until rolled sheet-brass became a commodity, and machinery was invented by which the wheels could be cut from it with a die. The small size shelf-clock began to be made by Terry previous to 1806, and by 1815 the number of clockmakers had largely increased because cheapness of manufacture had greatly augmented the demand. By competition among these manufacturers, Seth Thomas, Hoadley, Clark, Hopkins, and others, it came about that 30 hour clocks were made and sold in quantity at nine dollars per dozen, and good eight-day clocks at less than fifty dollars per dozen. For many years the American clock, of all sizes, styles and qualities, had been shipped very largely to all the countries of Europe, Mexico and South America, and even to China, Japan and India.

But it was not until recent years that American clockmakers have been able to compete with European manufacturers in the finer and more ornamental and expensive grades. Tower clocks were also imported until within twenty-five years. These last are now an important branch of manufacture, and reject all the time-honored defects while being greatly modified and improved in accuracy, durability and price. The regulator-clock, once invariably imported, has now become an established manufacture. The French parlor clock, long a rather frail and easily-deranged ornament for the homes of the wealthy, has now attained in American manufacture a beauty of pattern, a utility and a cheapness that has almost forced its foreign competitor out of the market.

One of the special manufactures of the clock-making industry in this country is a compact, cheap and reliable calendar clock, and it is the first attainment of the kind in any country. In this remarkable clock, now so common that it attracts little attention or inquiry, but little addition either of cost or of machinery seems to be required. There may or may not be a separate dial for the calendar. As in all other American clocks, a discrepancy between the calendar and the dial from a neglect to wind the clock is easily remedied. The day of the week and of the month are both given, and sometimes the changes of the moon. A clock such as this, once an acquisition only of the wealthy, is not now in this country considered even ornamental, and may be found in the farmer's kitchen. Another specialty is a small clock constructed to be hung in the cab of a locomotive, in which there is a compensating arrangement for the jar of the engine. This, with the marine clock, are simply watches on a large scale, with such improvements added as their uses demand for the keeping of correct time. Desk clocks in paper weights, traveling clocks, miniature

alarm clocks, costing to the last purchaser less than one dollar, and all respectable time-keepers and entirely efficient for ordinary use, are American specialties, common now even in African huts and Indian wigwams. Nothing can illustrate more entirely the drift of the American idea in manufactures than the modern clock and its relative, the American watch. This idea has been to combine utility with cheapness of manufacture, to add convenience and beauty by way of novelty and desirableness and still retain that cheapness which creates a market.

CLOISTER. The word "cloister," though now restricted to the four-sided enclosure, surrounded with covered ambulatories, usually attached to conventual and cathedral churches, and sometimes to colleges, or by a still further limitation to the ambulatories themselves, originally signified the entire monastery. In this sense it is of frequent occurrence in our earlier literature (*e. g.*, Shakespeare, *Meas. for Meas.*, i. 3), "This day my sister should the *cloister* enter"), and is still employed in poetry. The Latin *claustrum*, as its derivation implies, primarily denoted no more than the enclosing wall of a religious house and then came to be used for the whole building enclosed within the wall. To this sense the German "kloster" is still limited, the covered walks, or cloister in the modern sense, being called "kloster-gang," or "kreuz-gang." In French, as with us, the word *cloître* retains the double sense.

In the special sense now most common, the word "cloister" denotes the quadrilateral area in a monastery or college of canons, round which the principal buildings are ranged, and which is usually provided with a covered way or ambulatory running all round, and affording a means of communication between the various centers of the ecclesiastical life, without exposure to the weather. According to the Benedictine arrangement, which from its suitability to the requirements of monastic life, was generally adopted in the West, one side of the cloister was formed by the church, the refectory occupying the side opposite to it, that the worshipers might have the least annoyance from the noise or smell of the repasts. On the eastern side the chapter-house was placed, with other apartments belonging to the common life of the brethren adjacent to it, and, as a common rule, the dormitory occupied the whole of the upper story. On the opposite or western side were generally the cellarer's lodgings, with the cellars and store-houses, in which the provisions necessary for the sustenance of the confraternity were housed. In Cistercian monasteries the western side was usually occupied by the "domus conversorum," or lodgings of the lay-brethren, with their day-rooms and workshops below, and dormitory above. The cloister, with its surrounding buildings, generally stood on the south side of the church, to secure as much sunshine as possible. A very early example of this disposition is seen in the plan of the monastery of St. Gall. Local requirements, in some instances, cause the cloister to be placed to the north of the church. This is the case in the English cathedrals, formerly Benedictine abbeys, of Canterbury, Gloucester, and Chester, as well as in that of Lincoln. Other examples of the northward situation are at Tintern, Buildwas, and Sherborne. Although the covered ambulatories are absolutely essential to the completeness of a monastic cloister, a chief object of which was to enable the inmates to pass from one part of the monastery to another without inconvenience from rain, wind, or sun, it appears that they were sometimes wanting. The cloister at St. Alban's seems to have been deficient in ambulatories till the abbacy of Robert of Gorham, 1151-1166, when the eastern walk was erected. This, as was often the case with the

earliest ambulatories, was of wood covered with a pentice roof. We learn from Osbern's account of the conflagration of the monastery of Christ Church, Canterbury, 1067, that a cloister with covered ways existed at that time, affording communication between the church, the dormitory, and the refectory. We learn from an early drawing of the monastery of Canterbury that this cloister was formed by an arcade of Norman arches supported on shafts, and covered by a shed roof. A fragment of an arcaded cloister of this pattern is still found on the eastern side of the infirmary-cloister of the same foundation. This earlier form of cloister has been generally superseded in the North of Europe by a range of windows, usually unglazed, but sometimes, as at Gloucester, provided with glass, lighting a vaulted ambulatory, of which the cloisters of Westminster Abbey, Salisbury, and Norwich are typical examples. The older design was preserved in the South, where the cloister is never a window, or anything in the least approaching to it in design, but a range of small elegant pillars, sometimes single, sometimes coupled, and supporting arches of a light and elegant design, all the features being of a character suited to the place where they are used, and to that only.

All other cloisters are surpassed in dimensions and in sumptuousness of decoration by the "Campo Santo" at Pisa. This magnificent cloister consists of four ambulatories as wide and lofty as the nave of a church, erected in 1278 by Giovanni Pisano round a cemetery composed of soil brought from Palestine by Archbishop Lanfranchi in the middle of the twelfth century. The window openings are semicircular, filled with elaborate tracery in the latter half of the fifteenth century. The inner walls are covered with frescoes invaluable in the history of art by Orgagna, Simone Memmi, Buffalmacco, Benozzo Gozzoli, and other early painters of the Florentine school. The ambulatories now serve as a museum of sculpture. The internal dimensions are 415 feet 6 inches in length, 137 feet 10 inches in breadth, while each ambulatory is 34 feet 6 inches wide by 46 feet high.

CLONMEL, a parliamentary and municipal borough of Ireland, in the province of Munster, partly in the south riding of Tipperary and partly in Waterford county, 104 miles southwest from Dublin.

CLOOTZ, JEAN BAPTISTE, BARON, better known as Anacharsis Clootz, was born near Cleves. A baron by descent, and heir to a great fortune, he was sent at eleven to Paris to complete his education. There he imbibed the theories of his uncle, Cornelius de Pauw, and of the great anarchists of the epoch. He rejected his title and his baptismal names, adopted the pseudonym of Anacharsis from the famous philosophical romance of Abbé Barthélemy, and traversed Europe, preaching the new ideas as an apostle, and spending his money as a man of pleasure. On the breaking out of the Revolution he returned, in 1789, to Paris. In the exercise of the function he assumed of "Orator of the Human Race," he demanded at the bar of the National Assembly a share in the federation of all nations, presenting at the same time a petition against the despots of the world. In 1792 he placed 12,000 livres at the disposal of the Republic—"for the arming of forty or fifty fighters in the sacred cause of man against tyrant." The 10th of August impelled him to a still higher flight; he declared himself the personal enemy of Jesus Christ, abjured all revealed religions, and commenced preaching materialism. In the same month he had the rights of citizenship conferred on him; and, having in September been elected a member of the Convention, he voted the king's death in the name of the human race. Excluded

at the instance of Robespierre from the Jacobin Club, he was soon afterward implicated in an accusation leveled against Hébert and others. His innocence was manifest, but he was condemned and put to death.

CLOT, ANTOINE (1795-1868), was born in the neighborhood of Marseilles, and was brought up at the charity school of that town. After studying at Montpellier he commenced to practice as surgeon in his native place; but at the age of twenty-eight he was made chief surgeon to Mehemet Ali, viceroy of Egypt. At Abuzabel, near Cairo, he founded a hospital and schools for all branches of medical instruction, as well as for the study of the French language; and, notwithstanding the most serious religious difficulties, he prevailed on some of the Arabs to study anatomy by means of dissection. In 1832 Mehemet Ali gave him the dignity of bey without requiring him to abjure his religion; and in 1836 he received the rank of general, and was appointed head of the medical administration of the country. In 1849 he returned to Marseilles.

CLOTILDA, SAINT (475-545), was the daughter of Chilperic, king of Burgundy, and the wife of Clovis, king of the Franks. Her father, mother, and brothers were put to death by Gundebald, her uncle, but Clotilda was spared and educated. Gundebald opposed her marriage with Clovis, but by the aid of the clergy she escaped to the Frankish court (493), was married, and having adhered all along to the pure Catholic faith of her mother, effected the conversion of Clovis to Christianity (496). He lost no time in avenging the murder of his wife's parents; Gundebald was defeated, and became his tributary. After her husband's death Clotilda persuaded her three sons—Clodomir, Childebert, and Clotaire—to renew the quarrel, and to visit on Sigismund, Gundebald's son, his father's crime. The war which followed resulted in the union of Burgundy to the Frank Empire. Clotilda retired to Tours, and practiced there the austerities of a devout life till her death. She was buried in the Parisian Church of St. Geneviève, which Clovis had built, and was canonized a few years afterward by Pelagius I.

CLOUDS are masses of fog, consisting of minute particles of water, often in a frozen state, floating in the atmosphere. When air saturated, or nearly so, with vapor, has its temperature lowered, either by ascending and becoming rarer, or by meeting a colder current, a portion of the vapor loses its gaseous form, and becomes condensed into minute specks of water. A cloud, therefore, does not consist of vapor.

CLOUGH, ARTHUR HUGH (1819-61), a minor English poet, was born at Liverpool, in 1819, and belonged to a family of old Welsh descent.

CLOVER, or TREFOIL (*Trifolium*), a genus of plants of the natural order *Leguminosæ*, sub-order *Papilionaceæ*, containing a great number of species, natives chiefly of temperate climates; and some of them very important in agriculture as affording pasturage and fodder for cattle. The name clover is popularly extended to many plants not included in this genus, but belonging to the same natural order, and agreeing with it in having the leaves formed of three leaflets; particularly to those of them which are cultivated for the same purposes, and sometimes collectively receive from farmers the very incorrect designation of artificial grasses, in contradistinction to natural grasses—*i. e.*, true grasses. The true clovers (*Trifolium*) have herbaceous, not twining stems; roundish heads or oblong spikes of small flowers; the corolla remaining in a withered state till the ripening of the seed; the pod inclosed in the calyx; and containing one or two, rarely three or four, seeds.

CLOVES are the unexpanded flower-buds of *Caryo-*

phyllus aromaticus, a tree belonging to the natural order *Myrtaceæ*. They are so named from the French word *clou*, on account of their resemblance to a nail. The clove tree is a beautiful evergreen which grows to a height of from thirty to forty feet, having large oblong leaves and crimson flowers in numerous groups of terminal cymes. The flower-buds are at first of a pale color and gradually become green, after which they develop into a bright red, when they are ready for collecting. Cloves are rather more than half an inch in length, and consist of a long cylindrical calyx, terminating in four spreading sepals, and four unopened petals which form a small ball in the center. The tree is a native of the small group of islands in the Indian Archipelago called the Moluccas, or Spice Islands; but it was long cultivated by the Dutch in Amboyna and two or three small neighboring islands. Cloves were one of the principal Oriental spices which early excited the cupidity of Western commercial communities, having been the basis of a rich and lucrative trade from an early part of the Christian era. The Portuguese, by doubling the Cape of Good Hope, obtained possession of the principal portion of the clove trade, which they continued to hold for nearly a century, when, in 1605, they were expelled from the Moluccas by the Dutch. That power exerted great and inhuman efforts to obtain a complete monopoly of the trade, attempting to extirpate all the clove trees growing in their native islands, and to concentrate the whole production in the Amboyna Islands. With great difficulty the French succeeded in introducing the clove tree into Mauritius in the year 1770; subsequently the cultivation was introduced into Guiana, and at the end of the century the trees were planted at Zanzibar. The chief commercial sources of supply are now Zanzibar and its neighboring island Pemba on the East African coast, and Amboyna. Cloves are also grown in Java, Sumatra, Réunion, Guiana, and the West India Islands.

CLOVIO, GIULIO (1498–1578), by birth a Croat and by profession a priest, is said to have learned the elements of design in his own country, and to have studied afterwards with intense diligence at Rome under Giulio Romano, and at Verona under Girolamo de' Libri. He excelled in historical pieces and portraits, painting as for microscopical examination, and yet contriving to handle his subjects with great force and precision. In the Vatican Library is preserved a MS. life of Frederick, duke of Urbino, superbly illustrated by Clovio, who is *facile princeps* among Italian miniaturists.

CLOVIS, king of the Franks. See FRANCE.

CLOYNE (in Irish *Clain-Uamha*, or the Meadow of the Cave), a market town and formerly an Episcopal See of Ireland, in the county of Cork, and about four miles from the east side of Cork harbor.

CLUB. The records of all nations agree in attributing the institution of clubs and private companies to the earliest, or one of the earliest, rulers or legislators of whom they have retained any memory. Indeed such associations seem, as Addison has said, "to be a natural and necessary offshoot of men's gregarious and social nature." In the infancy of national existences, they are almost essential for purposes of mutual support and protection, and to supply the shortcomings of a weak government. But over and above those fellowships which spring from the inalienable right of self-preservation, and which are founded either in the ties of kindred or community of material interests, there are commonly found, even in matured and well-organized states, a number of secondary or accidental societies, established for the promotion of some common object; and a wise and strong government usually protects and encourages them as a most important condition of human progress.

They may be roughly divided into four different classes, according to their several objects; they may be either religious, political, commercial, or merely social; and an attempt has been sometimes made to assign these to different periods of national development. Such a distinction, however, cannot be successfully maintained, since the various elements were often most closely united in the same clubs, almost (or quite) from their very foundation. Thus, the corporations in Rome, whose foundation was attributed to Numa, would seem at first sight to have been merely for convenience of trade. But we are told that they had also a social or political purpose, viz., to break down the barriers which separated Romans from Sabines in the infant state. Moreover, Plutarch introduces a religious element into them also, saying that Numa "fixed certain times of meeting for these companies, and certain honors to the gods, assigning to each what was suitable for them." So again in Greece we have the testimony of Aristotle that members of the same tribe or borough used to club together, men following the same occupations, as soldiers or sailors, and others again for mere social amusement; yet he immediately adds—"these meet together for the sake of one another's company, and to offer sacrifices; when they meet they both pay certain honors to the gods, and at the same time take pleasurable relaxation among themselves." It is clear, then, that whatever may have been the precise object with which each private club or association was originally formed in pagan times, these distinctive marks were very soon blurred, and finally, in the lapse of time, altogether obliterated.

We need not say anything of the religious sodalities which were appointed in a regular way both in Greece and Rome for the worship of the gods recognized by the State.

If we turn from these religious associations to consider the craft-guilds in ancient Rome, the first thing that strikes us is their extraordinary number. In the days of Numa we are told that there were only eight; but as time went on they so multiplied that in the imperial period we count more than four-score of them, including almost every profession and handicraft one can think of, from bankers and doctors down to donkey-drivers and muleteers. Nor does the mere enumeration of the different trades and professions give us at all an adequate idea of their number; for when a club became very large, it was first subdivided into centuries, and then these again broke off into separate clubs. Again, there was one club or company of the watermen who plied their trade on the Saone, and another of the watermen on the Rhone, though both these companies had their headquarters at Lyons. The other navigable rivers, too, each had its own company. Thus, the most ancient notice we have of Paris is derived from a monument which has come down to us of the watermen on the Seine. We find mention, also, of more craft-guilds than one even in a single street of Rome; nay, further still, within the limits of a single house, *e.g.*, of the imperial palace, and probably of other princely establishments, which counted their hundreds or thousands of dependants. Each class of slaves engaged in different domestic occupations had their own clubs. Thus the *chef de cuisine* (*magister coquorum*) of Augustus bequeathed a sum of money to the collegium, or club, of cooks, in his imperial majesty's household, and there is evidence that there were five or six other clubs in the palace at the same time. We do not know how large each club may have been; an old inscription tells us of forty seats reserved for a particular club in the amphitheater at Nîmes, but these belonged probably to the officers of the club, not

to the ordinary members indiscriminately. Sometimes the number of members was limited, either by the original constitution of the body, or by conditions subsequently imposed by benefactors who did not wish their donations to be frittered away and rendered useless by too minute subdivisions. As to the internal organization of the clubs, the general laws and principles which governed their constitution, both in Athens and in Rome, they were molded, as was only natural, very much after the pattern of the civil institutions of the country. They were republican therefore in spirit, the administration of affairs being wholly in the hands of the members themselves, all of whom had equal rights; their watchful control was incessant, and their authority absolute; their officers were elected by universal suffrage, sometimes by acclamation; they were called by the same names as were borne by the magistrates of the state; they were elected annually, and on entering into office they took an oath that they would observe the constitution and laws of the corporation; and on retiring from office they gave an account of their stewardship to the assembled members, who exercised a right of judgment over them. This judgment seems to have been almost uniformly favorable; a commendatory decree was voted almost as much a matter of course as a vote of thanks to the chairman of our own public meetings.

It only remains that we should say a few words about the merely social clubs of pagan times—those clubs which had no other bond of union, either commercial, political, or religious, but which aimed only at the amusement or private advantage of their members. There was nothing in the functions of these clubs to obtain for them a place in the page of history. The evidence, therefore, of their existence and constitution is but scanty. Monumental inscriptions, however, tell us of clubs of Roman citizens in some of the cities of Spain, of a club of strangers from Asia resident in Malaga, of Phœnician residents at Pozzuoli, and of other strangers elsewhere. These all were probably devised as remedies against that sense of *ennui* and isolation which is apt to come over a number of foreigners residing at a distance from their native country. Something of the same kind of feeling may have led to the toleration of a club consisting of old soldiers who had been in the armies of Augustus; these were allowed to meet and fight their battles over again, spite of the legal prohibition of military clubs. Another military club of a different kind existed among the officers of a regiment engaged in foreign service in Africa. Its existence can have been no secret, for its rules were engraved on pillars which were set up near the headquarters of the general, where they have lately been found in the ruins of the camp. The contribution of each member on admission scarcely fell short of \$125, and two-thirds of this sum was to be paid to his heir or representative on the occasion of his death, or he might himself recover this proportion of his original subscription on retirement from military service. The peculiarity, however, of this aristocratic *collegium* was this, that it provided that a portion of the funds might also be spent for other useful purposes, *e.g.*, for foreign traveling. It is to be presumed that a member who had availed himself of this privilege thereby forfeited all claim to be buried at the expense of his club.

Clubs were by no means the exclusive privilege of the male sex in ancient days. Women also were united in similar associations. Their religious sodalities, indeed, were not generally edifying; but they combined together also for social and political purposes. The most remarkable of these was the great assembly of matrons, called at one time, in a mock-heroic way, "the minor

senate." This ladies' club received its title from imperial authority, which also legislated as to the needful qualifications of its members, the times of its meeting, and the subjects of its debates. These concerned the gravest questions of etiquette, such as what dress ladies should wear according to their social rank; who were to take precedence one of another on public occasions of state, in processions, or other ceremonies; who might ride in a carriage drawn by horses; who must be content to sit behind mules; whose sedan-chair might have fittings of ivory, whose of silver, etc. Not all ladies could attain to a seat in this little senate, which dealt with such delicate questions of etiquette; but we find them forming other clubs of their own which occasionally meddled with questions of municipal, if not of general, interest. They deliberated on the rewards to be given to this or that magistrate, and voted funds for monuments and statues in honor of those who had earned their approbation. The names of women are not infrequently set down as patronesses of certain craft-guilds, of which they can hardly have been ordinary members; and in one instance at least in Africa, and in another in Majorca, inscriptions distinctly mention that certain ladies had filled all the official posts in a *collegium*.

Modern Clubs.—The word *club*, denoting the promotion of intercommunity and good fellowship, is not very old, and only became common in the time of the *Tatler* and *Spectator*; it claims a descent, however, from the Anglo-Saxon, being derived from *cleofan*, to divide, because the expenses are divided into shares. Thomas Occleve mentions a club designated *La Court de Bone Compaignie* of which he was a member. Aubrey (1659) speaks thus of the word: "We now use the word *clubbe* for a sodality in a *taverne*." He also mentions the ballot box, that potential instrument too often used in modern days for the indulgence of secret spleen: "Here we had (very formally) a *ballotting box*, and ballotted how things should be carried."

The rise of the club in the United States may be ascribed to the years immediately succeeding the Civil war. They were mostly of Republican origin, partaking of the general character of the Union League, and they exercised a greater or less influence in politics, according to the status of their membership. In fact, the first of these organizations may be described as semi-political and semi-social. New York and Philadelphia took the lead in the organization of these sodalities, but it was not long before some of the growing cities of the West took an active part in organizing similar societies, until, at the present day, Chicago may be said to occupy the front rank in this regard. In addition to the purely social club, with an indiscriminate membership, may be mentioned the professional club, a prerequisite of membership in which is the practice of some particular profession—as, for instance, that of journalism.

The general concerns of clubs are managed by committees constituted of the trustees, who are usually permanent members thereof, and of ordinarily twenty-four other members, chosen by the club at large, one-third of whom go out of office annually. These committees have plenary powers to deal with the affairs of the club committed to their charge, assembling weekly to transact current business and audit the accounts. Once a year a meeting of the whole club is held, before which a report is laid, and any action taken thereupon which may be necessary.

CLUB-FOOT. The pathology and treatment of the various deformities of the foot, which are included under the above general title, come strictly under orthopedic surgery. Several forms of club-foot have been recognized by surgeons. There are four primary forms:—

(1) *Talipes equinus*, in which the heel does not touch the ground, the child resting on the toes; (2) *Talipes varus*, in which the foot is turned inwards and shortened, the inner edge of the foot raised, the outer edge of the foot only touching the ground; (3) *Talipes calcaneus*, a rare form, in which the heel only touches the ground, the toes being raised; (4) *Talipes valgus*, in which the foot is turned outwards. The third and fourth varieties are so rare that they are of no practical interest, and need not be further alluded to. It is possible to confound true talipes valgus with flat-foot, a deformity which is the result of undue stretching, from weakness, of the fascial and ligamentous structures which maintain the arched form of the foot. In flat-foot the arch is lost, the patient is splay or flat-footed, and as a secondary deformity the foot is turned outward, resembling and often confounded with true talipes valgus.

The two common primary forms of club-foot are *talipes equinus* and *talipes varus*. These two varieties are frequently combined; the deformity is then termed *talipes equino-varus*. A shortening or contraction of one group, or of allied groups, of muscles is always to be observed; as, for instance, in *talipes equinus*, to which the muscles of the calf are contracted, or in *talipes varus*, in which the group of muscles which turn the foot inward are contracted, or in *talipes equino-varus*, in which both sets are at fault. This contraction is due either to excessive primary irritation of the muscular group implicated, or is secondary to and the result of paralysis of an opposing group of muscles. In certain cases the paralysis affects more or less all the muscles of the limb; the result of this is a deformity in the direction of the most powerful group. The primary cause of these diseased conditions is some irritation of the cerebro-spinal central nervous system, either occurring before birth, and termed congenital, or appearing after birth, generally during the period of first dentition, and termed non-congenital. As a rule well-marked cases are congenital. Such deformities are frequently hereditary. Both feet may or may not be affected. Recognition of club-foot is of importance, because if not treated early a change takes place in the shape of the bones of the foot, which renders treatment much more difficult, and in some neglected cases it is impossible to restore the foot to its normal shape.

It is to Stromeyer in Germany (1837), and to Little and Adams in England, that we owe a true understanding of the pathology and treatment of these affections.

CLUNY, or CLUGNI, a town of France, in the department of Saône-et-Loire, about twelve miles by rail northwest of Macon, on the left bank of the Grône, a tributary of the Saône, crossed there by two bridges. It is a place of upwards of 4,000 inhabitants, and carries on a considerable agricultural trade, and the manufacture of pottery, paper, and vinegar. The main interest in the town is due to its specimens of mediæval architecture, which include, besides its celebrated abbey, the church of Notre Dame, dating from the thirteenth century; the church of Saint Marcel, with a beautiful spire; the ruins of Saint Mayeul; portions of the ancient fortifications; and a number of picturesque houses belonging to various periods from the twelfth century downward, classed among the historic monuments of France.

CLUSIUM. See CHIUSI.

CLUVER, PHILIP (1580-1623), a German geographer still regarded as an authority, was born at Danzig in 1580. After traveling in Poland and Germany, he commenced the study of law at Leyden, but he soon turned his attention to geography, which was then taught there by Joseph Scaliger. Displeased with his desertion of the law, his father refused to support him;

and he was forced to enter the army, with which he served for two years in Bohemia and Hungary. After leaving the army he undertook to get printed, in Holland an apology for Baron Popel, who had been imprisoned by the emperor; and in consequence he was himself thrown into prison. On his release he visited England, where he married and became acquainted with Dr. Holland and Dr. Prideaux. After spending some time in Scotland and France, he returned to Holland; and in 1611 he commenced to publish his works, being, after 1616, supported by a pension from the Academy of Leyden.

CLYDE, the most important river of Scotland, and the third in point of magnitude, has its origin from numerous small streams rising at a height of about 1,400 feet above the level of the sea, in the mountains which separate Lanarkshire from the counties of Peebles and Dumfries. Of the celebrated Falls of Clyde, three are above and one below Lanark; the uppermost is Bonnington Linn, the height of which is about thirty feet; the second is Corra Linn, where the water dashes over the rock in three distinct leaps, and resumes its course at a level eighty-four feet lower. Dundaff Linn is a small fall of ten feet; and at Stonebyres there are three successive falls, together measuring seventy-six feet in height. At high water the Clyde is navigable to Glasgow for the largest class of merchant vessels. See GLASGOW.

CLYDE, LORD (1792-1863), better known as SIR COLIN CAMPBELL, was born at Glasgow on the 16th of October, 1792. He received his education at the high school of that city, and when only sixteen years of age obtained an ensigncy in the Ninth Foot, through the influence of Colonel Campbell, his maternal uncle. The youthful officer had an early opportunity of engaging in active service. He fought under Sir Arthur Wellesley at Vimiera, took part in the retreat of Sir John Moore, and was present at the battle of Coruña. He shared in all the fighting of the next Peninsular campaign, and was severely wounded while leading a storming-party at the attack on San Sebastain. He was again wounded at the passage of the Bidassoa, and compelled to return to England, when his conspicuous gallantry was rewarded with the rank of captain and lieutenant, without purchase. Campbell held a command in the America expedition of 1814; and after the peace of the following year, he devoted himself to studying the theoretical branches of his profession. In 1823 he quelled the negro insurrection in Demerara, and two years later obtained his majority by purchase. In 1832 he became lieutenant-colonel of the Ninety-eighth Foot, and rendered distinguished service in the Chinese war of 1842. He was next employed in the Sikh war of 1848-49, under Lord Gough. He was created a K.C.B. in 1849, and specially named in the thanks of Parliament. After rendering important services in India, he returned home in 1853. Next year the Crimean war broke out, and he accepted the command of the Highland brigade. The success of the British at the Alma was mainly due to his intrepidity; and with his "thin red line" of Highlanders he repulsed the Russian attack on Balaklava. At the close of the war Sir Colin was promoted to be Knight Grand Cross of the Bath, and elected honorary D.C.L. of Oxford. His military services, however, had as yet met with tardy recognition; but, when the crisis came, his true worth was appreciated. The outbreak of the Indian Mutiny called for a general of tried experience, and on July 11, 1857, the command was offered him by Lord Palmerston. He left England the next evening, and reached Calcutta on August 13. Having formed an army as hastily as possible, he marched with 6,000 men and thirty-six guns to the relief of Lucknow. When the British guns were

silenced by the fire of the rebels, Sir Colin himself headed the final assault, carried the fort, and saved the besieged. He afterward thoroughly defeated the enemy, —thus crushing the mutiny and preserving the British rule in India. For these services he was raised to the peerage in 1858, by the title of Lord Clyde; and returning to England in the next year he received the thanks of both Houses of Parliament. He died August 14, 1863.

CLYSTER (Gr. from *klyzo*, I wash out), called also *enema*, a medicine administered in the liquid form by the rectum, or lower end of the intestine. It is used either for the purpose of procuring evacuation of the bowels, or of conveying stimulating or nourishing substances into the system. For the latter purpose wine and beef-tea, or milk, in quantities of a few ounces at a time, are employed; for the former, simple warm or cold water in sufficiently large quantities to distend the bowels, and produce the evacuation; or in special cases, various cathartics may be used in addition, such as colocynths, aloes, castor oil, or turpentine made into an emulsion with yolk of egg, and sometimes carminatives, to expel air. Narcotic clysters are also employed, but should only be used under medical superintendence. An injecting syringe, with a flexible tube, and a double-action valve, is usually employed for the administration of this remedy.

CLYTÆMNESTRA, the daughter of Tyndareus and Leda, and wife of Agamemnon. See AGAMEMNON.

CNIDUS, now TEKIR, an ancient city of Caria, in Asia Minor, situated at the extremity of the long peninsula that forms the southeast side of the Sinus Ceramicus, or Gulf of Cos. Our knowledge of the site is largely due to the mission of the Dilettanti Society in 1812, and the excavations executed by Mr. C. T. Newton in 1857-58. The agora, the theatre, an odeon, a temple of Dionysus, a temple of the Muses, a temple of Venus, and a great number of minor buildings have been identified, and the general plan of the city has been very clearly made out.

CNOSSUS, or GNOSSUS, the most important city of Crete, on the left bank of the Cæratas, a small stream which falls into the sea on the north side of the island. The city was situated at a distance of about three miles from the coast, and, according to the old traditions, was founded by Minos, the mythical king of Crete. The locality was associated with a number of the most interesting legends of Grecian mythology, particularly with those which related to Jupiter, who was said to have been born, to have been married, and to have been buried in the vicinity. Cnossus is also assigned as the site of the fabled labyrinth in which the Minotaur was confined, and a physical basis for the legend may perhaps have been found in the caverns and excavations of the district. As the city was originally peopled by Dorians, the manners, customs, and political institutions of its inhabitants were all Dorian.

COACH is a general name for a vehicle drawn by horses, designed for the conveyance of passengers, as distinguished from a wagon or cart, for the conveyance of goods. Coaches or inclosed carriages, drawn on wheels, and intended for passengers, were inventions which have been claimed by Hungary, England, Italy, France, Spain, and Germany. The name is derived by Wedgwood from Fr. *coucher*, to lie, which becomes in Dutch *koetsen*, whence *koetse* or *koets-wagen*, a litter or carriage in which you may recline. The earliest record founded by Beckmann relates to about the year 1280, when Charles of Anjou entered Naples, and his Queen rode in a *caretta*. It is believed that most of these vehicles had broad wheels, the only form suited for the wretched roads of those ages; and it is certain that all those of early date were open overhead.

COADJUTOR (Lat.), a fellow-worker not as principal but as second, an assistant. Technically, it is applied in ecclesiastical law to one appointed to assist a bishop, whom age or infirmity has disabled.

COAGULATION, the amorphous solidification of a liquid, or part of a liquid, as when the caseine of milk is solidified by rennet in making cheese, or the white of an egg by boiling.

COAHUILA, a State of the Mexican Confederation, separated from Texas by the Rio Bravo del Norte, in latitude 24°—30° N., and longitude 100°—103° E. It contains 50,890 square miles, and (1882) 130,026 inhabitants.

COAL. In its most general sense the term coal includes all varieties of carbonaceous minerals used as fuel, but it is now usual in English speaking countries to restrict it to the particular varieties of such minerals occurring in the older Carboniferous formations. On the continent of Europe it is customary to consider coal as divisible into two great classes, depending upon differences of color, namely, *brown coal*, corresponding to the term "lignite" used in England and France, and *black* or *stone coal*, which is equivalent to coal as understood in America.

Coal is an amorphous substance of variable composition, and therefore cannot be as strictly defined as a crystallized or definite mineral can. It varies in color from a light brown in the newest lignites to a pure black, often with a bluish or yellowish tint in the more compact anthracite of the older formations. It is opaque, except in exceedingly thin slices, such as made for microscopic investigation, which are imperfectly transparent, and of a dark brown color by transmitted light. The streak is black in anthracite, but more or less brown in the softer varieties. The maximum hardness is from 2.5 to 3 in anthracite and hard bituminous coals, but considerably less in lignites, which are nearly as soft as rotten wood. A greater hardness is due to the presence of earthy impurities. The densest anthracite is often of a semi-metallic luster, resembling somewhat that of graphite. Bright, glance, or pitch coal is another brilliant variety, brittle, and breaking into regular fragments of a black color and pitchy luster. Lignite and cannel are usually dull and earthy, and of an irregular fracture, the latter being much tougher than the black coal. Some lignites are, however, quite as brilliant as anthracite; cannel and jet may be turned in the lathe, and are susceptible of taking a brilliant polish. The specific gravity is highest in anthracite and lowest in lignite, bituminous coals giving intermediate values. As a rule the density increases with the amount of carbon, but in some instances a very high specific gravity is due to intermixed earthy matters, which may be separated by mechanical treatment.

The most important class of coals is that generally known as bituminous, from their property of softening or undergoing an apparent fusion when heated to a temperature far below that at which actual combustion takes place. This term is founded on a misapprehension of the nature of the occurrence, since, although the softening takes place at a low temperature, still it marks the point at which destructive distillation commences, and hydrocarbons both of a solid and gaseous character are formed. That nothing analogous to bitumen exists in coals is proved by the fact that the ordinary solvents for bituminous substances, such as bisulphide of carbon and benzole, have no effect upon them, as would be the case if they contained bitumen soluble in these reagents. The term is, however, a convenient one, and one whose use is almost a necessity, from its having an almost universal currency among coal miners. The proportion of carbon in bituminous coals may vary from

80 to 90 per cent.—the amount being highest as they approach the character of anthracite, and least in those which are nearest to lignites. The amount of hydrogen is from $4\frac{1}{2}$ to 6 per cent., while the oxygen may vary within much wider limits, or from about 3 to 14 per cent. These variations in composition are attended with corresponding differences in qualities, which are distinguished by special names. Thus the semi-anthracite coals are known as “dry” or “steam coals,” being especially valuable for use in marine steam-boilers, as they burn more readily than anthracite and with a larger amount of flame, while giving out a great amount of heat, and practically without producing smoke. Coals richer in hydrogen, on the other hand, are more useful for burning in open fires—smiths’ forges and furnaces—where a long flame is required.

Lignite or brown coal includes all varieties which are intermediate in properties between wood and coals of the older formations. A coal of this kind is generally to be distinguished by its brown color, either in mass or in the blacker varieties in the streak. The proportion of carbon is comparatively low, usually not exceeding 70 per cent., while the oxygen and hygroscopic water are much higher than in true coals. The property of caking or yielding a coherent cake is usually absent, and the ash is often very high. The specific gravity is low when not brought up by an excessive amount of earthy matter. Sometimes it is almost pasty, and crumbles to powder when dried, so as to be susceptible of use as a pigment, forming the color known as Cologne earth, which resembles umber or sepia.

The amount of water present in freshly raised coals varies very considerably. It is generally largest in lignites, which may sometimes contain 30 per cent. or even more, while in the coals of the coal measures it does not usually exceed from 5 to 10 per cent. The loss of weight by exposure to the atmosphere from drying may be from one-half to three-fourths of the total amount of water contained.

Coal is undoubtedly the result of the transformation of vegetable matter, mainly woody fiber, by the partial elimination of oxygen and hydrogen giving rise to a substance richer in carbon than the original wood,—the mineral matter being modified simultaneously by the almost entire removal of the alkalies and lime, and the addition of materials analogous in composition to clay.

The plants concerned in the production of coal vary very considerably in different geological periods. In the coal measures proper, acrogens, ferns, equisetums, and similar allied forms are most abundant. It is stated by some observers that entire beds of coal are sometimes made up of the spores of ferns. This, however, appears to depend upon the inspection of microscopic sections, and may not be capable of rigorous quantitative demonstration. In the coals of newer date exogenous wood and leaves are more common than in those of the coal measures; the former also contain resins, sometimes in considerable quantity.

There are about twenty principal coal fields of Great Britain, besides several smaller ones, which may be classed under three heads: 1. Those forming complete basins, entirely circumscribed by the lower members of the Carboniferous series; 2. Those in which one limb of the basin only is visible, the opposite one being obscured by Permian or other strata of newer date; and 3. Those in which the boundaries are formed by faults, which bring down the upper overlying strata into contact with the coal measures.

The largest and most important of the British coal

fields is that of South Wales, which extends from Pontypool in Monmouthshire on the east, to Kidwelly in Pembrokeshire, a length of about fifty miles, and from Tredegar on the north to Llantrissant on the south, a breadth of about eighteen miles, in addition to which a further narrow slip of about twenty miles long, east and west, extends across Pembrokeshire.

The total area of the coal field is about 1,000 square miles, of which amount about 153 square miles lie beneath the sea in Swansea and Carmarthen bays. Only one square mile is covered by newer formations.

The forest of Dean basin is an outlying portion of that of South Wales, from which, as is shown by Ramsay, it has been separated by denudation. It is of triangular form, occupying an area of thirty-four square miles, between the Wye and the Severn estuary, with a total thickness of 2,765 feet, and with thirty-one seams, together forty-two feet thick, only nine of which are above two feet in thickness. The depth from the surface to the bottom of the basin, in the center, is about 2,500 feet.

North of Malvern Hills a struggling patch of coal measures extends about thirty-five miles north and south, from near Worcester to Newport in Shropshire.

To the westward of Colebrookdale are the two small fields of Leebotwood and Shrewsbury.

The South Staffordshire coal field extends about twenty-two miles north and south, from Rugeley to Halesowen, with a greatest breadth of about ten miles from Wolverhampton to Oldbury.

This district is remarkable as containing the thickest known coal seam in England, the thick or ten-yard seam, which varies from 30 to 45 feet in thickness in the neighborhood of Dudley, but splits up northward into several thinner seams in the northern or Cannock Chase district. There are six principal seams, with a total of from 57 to 70 feet, in 1,300 feet of measures.

The Warwickshire or Tamworth coal field is a narrow strip of measures, with a maximum thickness of 3,000 feet, extending about twelve miles in a north-west and southeast line from Coventry to Tamworth.

The Leicestershire or Ashby coal field is an irregular patch of thirty square miles, on the east side of Charnwood Forest, about midway between Leicester and Burton-on-Trent. It has seven principal seams, and probably rests upon the mountain limestone, except at the eastern end, where it may lie upon the old slaty rocks of Charnwood Forest.

North of the Trent the Carboniferous strata present a more complete and regular development than is seen in the central coal fields. The Carboniferous limestone and millstone grit formations form a central ridge of high moorlands and hills, the so-called Pennine chain, in a gently sloping anticlinal, running nearly north and south from the north of Derbyshire to the borders of Scotland. The coal measures occur on both flanks of this ridge, the largest connected mass being that of Derbyshire and Yorkshire coal field, which extends north and south for about sixty miles from Bradford to within a few miles from Derby, where it is covered by the New Red Sandstone formation.

On the west side of the Pennine axis, and between the same parallels as the Derbyshire and Yorkshire coal fields, are those of North Staffordshire and Lancashire, which extend from Longton on the south to Colne on the north, the continuity being, however, broken by a small fold of the Carboniferous limestone shales, which is brought to the surface between Macclesfield and Congleton. Parallel to this group, however, and to the eastward of it, is situated the small but important coal field of North Staffordshire, also known as the pottery coal field.

The coal field of Northumberland and Durham lies north of that of Yorkshire, on the east side of the Penine axis. In the intermediate ground between Leeds and Darlington, about fifty-five miles, the lower Carboniferous rocks are directly overlaid by the Magnesian limestone, which preserves the north and south course observed further south until it reaches the sea at the mouth of the Tyne. The coal field extends north and south from Darlington through Durham to the mouth of the Coquet, about sixty-five miles, with a greatest breadth of about twenty-two miles in Durham.

The Cumberland field extends along the coast of the South Irish Channel, from Saint Bees northward for fifteen miles to Maryport, where it turns eastward for about seventeen miles, and is exposed with constantly diminishing breadth until it disappears under the Permian rocks of the Vale of Eden. The greatest breadth is about five miles at Whitehaven and Workington.

The coal measures of North Staffordshire and Lancashire reappear on the western side of the plain of Cheshire, in the coal fields of Denbighshire and Flintshire, which form a nearly continuous tract from the neighborhood of Oswestry through Ruabon and Wrexham, to the mouth of the Dee, and along the Welsh coast, near Mostyn.

The basin formed by the North Wales, Lancashire and North Staffordshire coal field is probably the most extensive tract of coal measures in the country, as it may be assumed to extend under the overlying Triassic strata, under the Dee and the Mersey, to South Lancashire, and across the plain of Cheshire, an area of 800 to 1,000 square miles.

There is a small coal field in the island of Anglesea, which is interesting for its geological peculiarities, but it is of very small economic value.

The Somersetshire coal field appears at the surface in the form of several disconnected patches, the largest of which extends northward of Bristol for about twelve miles, while the remainder stretches southward for about the same distance, to the Mendip hills.

The coal-bearing strata of Scotland are confined to the Carboniferous formation, the only exception being a little patch of Oölitic coal at Brarn, in Sutherland, and certain thin seams which occur intercalated among the Miocene volcanic rocks of the Western Islands.

The Ayrshire basin, owing to undulations and faultings of the strata, comprises a number of subsidiary coal fields, such as those of Girvan, Sanquhar (Dumfriesshire), Dalmellington, New Cumnock, Lugar, and Muirkirk, Kilmarnock, Kilwinning, Dalry, etc. The coal measures of this basin are of variable thickness; they contain from five to eight and eleven principal coal seams, yielding a united thickness of from thirteen to forty feet.

The Lanarkshire fields are the most extensive in Scotland, covering an area of not less than 150 square miles. The coal measures, which attain a thickness of upward of 2,000 feet, contain about 18 workable coals, but all these are not continuous throughout the whole coal field, while some are too thin in places to pay the cost of working. At their best they yield an aggregate thickness of seventy feet or thereabouts, but in many places they do not average more than forty or thirty feet.

The Stirlingshire fields embrace Falkirk, Carron, and Grangemouth, Slamannan, Clackmannan, and Borrowstounness. In the Falkirk, Carron, and Grangemouth fields, the coal measures are about 600 feet thick, and contain about 9 workable seams of

coal, yielding an aggregate thickness of 30 to 31 feet; the thickest seam is only 4 feet. In the Slamannan field, the coal measures are some 720 feet thick, and show 6 workable coals, yielding an aggregate thickness of 15 to 16 feet, the thickest seam being 4½ feet. A small outlier of coal measures at Coney Park, however, gives a depth of 1,140 feet of strata, containing 12 workable coals (two of which are seven feet thick, respectively), which yield an aggregate thickness of 44 feet. The coal measures of the Clackmannan district attain a thickness of 900 feet, and yield 10 workable seams of coal (thickest seam 9 feet), with a united thickness of 41 feet.

The Midlothian coal field is disposed in what are for Scotland unusually symmetrical and unbroken lines. The basins lie with their principal synclinal axes from north to south. In the deepest basin the coal measures lie in a trough two and one-fourth miles broad and nine miles in length, stretching from the sea at Musselburgh through Dalkeith to Carrington.

The Carboniferous strata of Ireland consist chiefly of the Carboniferous limestone, which covers the greater portion of the island in one connected mass. The coal measures have probably been at one time nearly as extensive, but they have been almost entirely removed by denudation, the largest remaining basin being that of Castlecomer, near Kilkenny, and another in the west, between Tralee, Mallow and Killarney.

The most important development of the coal measures in Belgium is in the basin of Mons, which extends from Mons to Thulin, a length of about 14 miles, with a breadth of about 7 or 8 miles, a large portion of the area being covered by newer strata. The number of known coal seams is 157, out of which number from 117 to 122 are considered to be workable, their thickness varying generally between 10 and 28 inches, only a very few exceeding 3 feet.

The coal fields of Central and Southern France are mostly small in area and irregular in structure, with, at times, remarkable single accumulations of coal of enormous thickness, which do not however, extend for any distance. The most important basin is that of Saint Etienne and Rive de Gier, south of Lyons, on the right bank of the Rhone. It is of triangular form, about 28 miles long, with a base of 8 miles. The thickness of the three principal seams at the latter place is about 33 feet, but at Saint Etienne there are from fifteen to eighteen seams, making together about 112 feet in a total depth of measures of about 25,00 feet.

The coal fields of Prussia, situated on the extension of the Franco-Belgian axis, are the two small basins of the Inde and Worm, east of Adelnau, near Stolberg and Eschweiler, which are included in single sharply sloped folds of the mountain limestone, and the great Westphalian basin east of the Rhine, in the valley of the Rhur. The latter, which is one of the most important in Europe, extends for about 30 miles east and west from Essen to Dortmund. The breadth is unknown; the beds are exposed for about fifteen miles at the broadest part, but the actual boundaries to the north and northeast are hidden by Cretaceous rocks. The greatest depth from the surface to the bottom of the basin is probably about 5,000 feet. It is divided lengthways by transverse axes of elevation into four principal basins, besides several smaller ones. The total thickness of measures already proved is from 6,000 to 8,000 feet, with about 130 seams of coal, together about 300 feet thick.

The most important coal fields of Eastern Europe

are those of Silesia. The Carboniferous limestone series and the lowest coal measures or culm strata reappear in these basins, and are associated with numerous valuable mineral deposits, mainly of zinc and lead ore.

The coal fields of Russia have been but imperfectly known until a comparatively recent period, when the demand for fuel caused by the extension of railways and the increase in manufacturing industries has stimulated explorations, which have resulted in the discovery of coal-bearing strata of considerable magnitude and extent. These belong to the period of the Carboniferous limestone, like the lower coals of Scotland.

Among the southern countries of Europe the first place must be given to the coal fields of Spain, but even these are of comparatively small importance, when measured by a northern standard, consisting of a few small and scattered basins, in which both Carboniferous and Secondary coals are represented.

In Turkey, Carboniferous coal is found at Heraclea, in Asia Minor, and has been worked from time to time, but hitherto without much influence upon the coal produce of Europe. Lignites are known to occur near Smyrna, and in the Lebanon and various other points in Syria.

The coal-bearing strata of India occur in numerous detached basins, which are widely distributed over the whole peninsula, their aggregate area, however, being but small. The principal development is in the valley of the Damodor River, one of the southern tributaries of the Hugli, the largest coal field being that of Raniganj, on the line of the East Indian Railway, about 140 miles W. of Calcutta, which covers an area of about 500 square miles. It is a basin resting upon Crystalline Schists, and partly covered by Triassic sandstones in the center, and by jungle and Alluvium to the eastward, so that the real area is not yet known.

The coal fields of China are known, from the researches of Baron von Richthofen, Prof. Pumpelly, and other travelers, to cover a very large area, comparable only with those of North America; but, as may be imagined, no very detailed information has as yet been obtained concerning them.

In Japan coal is worked at several points, but no detailed account of the mode of its occurrence has been published. At the island of Takasima, near Nagasaki, a colliery is worked by the Japanese Government for the supply of their steamers on a tolerably large scale.

In the great islands of the Indian and South Pacific Oceans, coal-bearing strata are known at many different points; but in the absence of systematic investigation, no general estimate can be formed of their position, extent, or value.

The most important southern coal deposits, however, are those of Australia, which extend, with short intervals, from the Gulf of Carpentaria to Bass's Straits. In the northern districts, the distribution appears to be somewhat similar to that seen in South America, Secondary and Tertiary basins occupying the ground near the sea, while true Carboniferous coal is found further inland; but in New South Wales, where their development is greatest, older coal-bearing strata extend along the eastern slope of the continent, between the parallels of 29 and 35 degrees S. latitude, covering a very large area in several detached portions, the largest probably exceeding 12,000 miles, and come down to the sea.

In North America, the Carboniferous strata are divided by geologists into two principal groups,—the lower or sub-Carboniferous, which correspond to the

Carboniferous limestone of Europe, and the Carboniferous, which includes the millstone grit and coal measures.

The first of these is about 5,000 feet thick in Pennsylvania, consisting mainly of shales and sandstones; but in the Mississippi valley, in Illinois, Iowa, and Missouri, a considerable thickness of limestone is developed in this part of the series. In the former region some thin coal seams are found, the relation between the two areas being in this respect similar to that of the Carboniferous limestone in England to the coal-bearing formations of similar age in Scotland.

The millstone grit forms a mass of sandstones and conglomerates from 1,200 to 1,400 feet thick in eastern Pennsylvania, but thins rapidly to the westward, being only from 100 to 250 feet thick in Ohio and Tennessee. In Arkansas, the compact and siliceous rock known as novaculite, or Arkansas hone stone, occurs in this member of the Carboniferous series.

The coal measures proper cover a very large area, both in the United States and Canada. First in importance is the Appalachian coal field, covering about 60,000 square miles, extending through parts of Pennsylvania, Ohio, Virginia, eastern Kentucky, Tennessee, and Alabama. The maximum thickness of strata is from 2,500 to 3,000 feet; that of included coal is 120 feet near Pottsville, 62 feet at Wilkesbarre, and about 25 feet at Pittsburg, showing a gradual diminution to the westward. The most persistent coal is the Pittsburg seam, which is known over an area measuring 225 miles by 100 miles, but with a thickness varying from 2 to 14 feet.

The anthracite district of central Pennsylvania occupies an area of about 650 miles on the left bank of the Susquehanna River. The strata between Pottsville and Wyoming, which belong to the lowest portion of the coal measures, are probably about 3,000 feet thick, but it is difficult to arrive at an exact estimate, owing to the numerous folds and contortions. There are from ten to twelve seams above 3 feet in thickness; the principal one, known as the Mammoth or Baltimore vein, is 29½ feet thick at Wilkesbarre, and in places even exceeds 60 feet.

The Illinois and Missouri basin covers a considerable part of these States, as well as of Indiana and Kentucky, Iowa, Kansas and Arkansas. Its area is estimated at 60,000 square miles, the thickness varying from 600 feet in Missouri to 3,000 feet in western Kentucky. The aggregate thickness of coal is about seventy feet. A good furnace coal is obtained in Indiana, the so-called block coal of Brazil near Indianapolis, which, like the splint coals of Scotland and those of Staffordshire, can be used in the blast furnace without coking.

In Michigan a nearly circular area of coal measures, of about 5,000 square miles, occurs in the lower peninsula between Lakes Huron and Erie. The thickness is only 120 feet, and the coals unimportant.

Other coal-bearing areas of less value are known in Texas and Rhode Island.

The Carboniferous strata are largely developed in the eastern provinces of the Dominion of Canada, notably in New Brunswick and Nova Scotia. The lower Carboniferous group here consists of about 6,000 feet of red sandstones and green marls, with thick beds of fossiliferous limestones, accompanied by gypsum. The limestones increase in thickness southward. In this series occurs the peculiar pitch-like or asphaltic coal of the Albert mine in New Brunswick, which is mined to a considerable extent. The overlying coal measures, including the millstone grit, occupy an area estimated at 18,000 square miles. The

whole thickness of this group at South Joggins is about 14,750 feet, with seventy-six included coal seams, together 45 feet in thickness, which are contained in the middle division of the series. At Pictou there are six seams, together measuring 80 feet in thickness. The coal measures in this area approach more near to the great coal fields of Europe in thickness than those of the other American Carboniferous districts. Rocks of Carboniferous age occur in various places on both flanks of the Rocky mountains, and in the Arctic Archipelago, but have not yet been explored.

Lignite-bearing strata of Cretaceous and Tertiary age occupy a very considerable area in the central and western portions of North America, especially in the upper Missouri and Saskatchewan valleys, in Utah and Texas, and in California, Oregon, and Vancouver Island. In the last locality coal has been extensively mined near Nanaimo, on the east coast, for several years past, in strata of Cretaceous age. Tertiary lignites are worked in Bellingham Bay, at Coose Bay, in Oregon, and at Monte Diabolo, near San Francisco. The lignitic formations of the eastern flank of the Rocky Mountains, which are considered by Hayden to occupy a position between the Cretaceous and Eocene Tertiary strata, occupy an area estimated at about 50,000 square miles within the United States, and extend both northward into Canada and southward into Mexico.

In South America coal, probably of Carboniferous age, is found in the Brazilian provinces of Sao Pedro, Rio Grande do Sul, and Santa Catharina, and in the neighboring state of Uruguay. The largest area is that known as the Candiota coal field, which is exposed for about fifty miles in the valley of the river of the same name. The sections exposed show five seams from 9 to 25 feet each, or together about 65 feet of coal. Other basins are known at S. Sepé and S. Jeronimo, on the Jacahahay River. The latter is the only point at which mines are worked, as the coals, though thinner than those of the other localities mentioned, are situated within the reach of navigable waters, having only to bear a land carriage of eight miles to the river.

On the west coast of South America, Cretaceous coals are worked at Lota, in Chili, and at Sandy Point, in the Straits of Magellan. In Peru both Secondary and Carboniferous coals are known at various points in the interior, the former occupying a position on the first rise of the tableland of the Andes, while the latter occur in higher ground, at a greater distance from the coast. Good coal is also found at many points in the Santa valley.

Much of the Peruvian coal has undergone considerable disturbance and metamorphism subsequent to its deposition. At Porton, forty-five miles east of Truxillo, a ridge of coal-bearing sandstones has been changed into a hard quartzite, with an interstratified seam of anthracite in a nearly vertical position. The coal is remarkable as containing a large amount of sulphur and is of little value. The hitherto inaccessible position of these places, which are usually more than 10,000 feet above the sea level, has prevented the development of coal mining in Peru; but the extension of railways into the mountains will probably bring them into importance by stimulating a local demand for fuel.

The working of coal may be conducted either by means of levels or galleries driven from the outcrop in a valley, or by shafts or pits sunk from the surface.

The methods adopted in driving levels for collieries are generally similar to those adopted in other mines.

The ground is secured by timbering, or more usually by arching in masonry or brick work. Levels which are driven across the stratification, or generally anywhere not in coal, are known as "stone drifts." The sinking of colliery shafts, however, differs considerably from that of other mines, owing to their generally large size, and the difficulties that are often encountered from water during the sinking. The actual coal measure strata, consisting mainly of shales and clays, are generally impervious to water, but when strata of a permeable character are sunk through, special methods are required in order to pass the water-bearing beds, and to protect the shafts and workings from the influx of water subsequently. Of these methods one of the chief is the plan of tubing, or lining the excavation with an impermeable casing of wood or iron, generally the former, which is built up in segments forming rings, that are piled upon each other throughout the whole depth of the water-bearing strata.

The second principal method of sinking through water-bearing ground is that which was first adopted by M. Triger, in France, and has also been used by civil engineers in putting down deep foundations for bridge piers, namely, by compressed air. The shaft is lined with a cylinder of wrought iron, within which a tubular chamber, provided with doors above and below, known as an air lock, is fitted by a telescopic joint, which is tightly packed so as to close the top of the shaft air-tight. Air is then forced into the inclosed space by means of a compressing engine, until the pressure is sufficient to oppose the flow of water into the excavation, and to drive out any that may collect in the bottom of the shaft through a pipe which is carried through the air sluice to the surface. The miners work in the bottom in the same manner as divers in an ordinary diving-bell. Access to the surface is obtained through the double doors of the air sluice, the pressure being reduced to that of the external atmosphere when it is desired to open the upper door, and increased to that of the working space below when it is intended to communicate with the sinkers, or to raise the stuff broken in the bottom.

The actual cutting of the coal is chiefly performed by manual labor, the tool employed being a sharp-pointed double-armed pick, which is nearly straight, except when required for use in hard rock, when the arms are made with an inclination or "anchored." The terms, pike, pick, mandril, and slitter are applied to the collier's pick in different districts, the men being known as pikemen or hewers. In driving levels it is necessary to cut grooves vertically parallel to the walls, a process known as shearing; but the most important operation is that known as holing or kirving, which consists in cutting a notch or groove in the floor of the seam to a depth of about three feet, measured back from the face, so as to leave the overhanging part unsupported, which then either falls of its own accord within a few hours, or is brought down either by driving wedges along the top, or by blasting with gunpowder. The process of holing in coal is one of the severest kinds of human labor. It has to be performed in a constrained position, and the miner lying on his side has to cut to a much greater height, in order to get room to carry the groove into a sufficient depth, than is required to bring the coal down, giving rise to a great waste in slack as compared with machine work.

The substitution of machinery for hand labor in cutting coal has long been a favorite problem with inventors, the earliest plan being that of Menzies, in 1761, who proposed to work a heavy pick underground by

power transmitted from an engine at the surface, through the agencies of spear rods and chains passing over pulleys; but none of the methods suggested proved to be practically successful until the general introduction of compressed air into mines furnished a convenient motive power, susceptible of being carried to considerable distances without any great loss of pressure. This agent has of late years been applied in various ways, in machines which either imitate the action of the collier by cutting with a pick or make a groove by rotating cutters.

The removal of the coal when broken from the working faces to the pit bottom or to the main levels is effected mainly by hand labor when the mine is small, and the distances to be traversed inconsiderable, and in mines of greater extent by horse or steam traction. The simplest method is that of loading the broken coal on to a sledge, which is dragged along the floor to the level, but now the practice of carrying railways to the face is almost universal.

In the removal of the coal from the workings the first portion of the journey is generally performed by hand power, boys being employed to push the trams before them to the main roads. Where the levels are large, mule traction is in common use; the trams are formed up into trains, and from six to fifteen vehicles are drawn by one mule. In a large colliery where the shafts are situated near the center of the field, and the workings extend on all sides, both to the dip and rise, the drawing roads for the coal may be of three different kinds,—(1) levels driven at right angles to the dip, suitable for horse roads, (2) rise ways, known as jinny roads, jig-brows, or up-brows, which, when of sufficient slope, may be used as self-acting planes, *i. e.*, the loaded wagons may be made to pull back the empty ones to the working faces, and (3) dip or down-brows, requiring engine power.

One of the most important branches of colliery work is the management of the ventilation, involving as it does the supply of fresh air to the men working in the pit, as well as the removal of inflammable gases that may be given off by the coal. This is effected by carrying through the workings a large volume of air which is kept continually moving in the same direction, descending from the surface by one or more pits known as intake or downcast pits, and leaving the mine by a return or upcast pit. Such a circulation of air can only be effected by mechanical means when the workings are of considerable extent.

The comparative merits of furnace and machine ventilation have long been discussed without any definite result. The former was at one time regarded in England as practically superior in every respect, but this opinion has been modified since the introduction of the improved forms of fans which have been worked to a considerable extent. In France and Belgium, on the contrary, machine ventilation has been more generally in favor. For a deep and extensive mine where the coal is not fiery, the furnace is undoubtedly the simplest and most efficacious method of producing a large circulation of air; but for moderate depths, especially with fiery return air, a ventilating machine at the surface is in many cases to be preferred. There is also an important advantage procured by the latter, namely, that of reserve power, so that a larger circulation may be obtained immediately in case of need, *e. g.*, when the barometer falls suddenly, by merely increasing the speed of rotation, which cannot so readily be done with the furnace, which has a tendency to slacken at the time when the increased work is wanted.

The quantity of air required for a large colliery depends upon the number of men employed, as for

actual respiration, from 100 to 200 cubic feet per minute should be allowed. In fiery mines, however, a very much larger amount must be provided in order to dilute the gas to the point of safety. Even with the best arrangements a dangerous increase in the amount of gas is not unfrequent from the sudden release of stored up masses in the coal, which, overpowering the ventilation, produces magazines of explosive material ready for ignition when brought in contact with the flame of a lamp or the blast of a shot. The management of such places, therefore, requires the most constant vigilance on the part of the workmen, especially in the examination of the working places that have been standing empty during the night, in which gas may have accumulated, to see that they are properly cleared before the new shift commences.

The gases evolved from the sudden outbursts of blowers in coal, which are often given off at a considerable tension, are the most dangerous enemy that the collier has to contend with. They consist almost entirely of marsh gas, with only a small quantity of carbonic acid, usually under 1 per cent., and from 1 to 4 per cent. of nitrogen.

Fire damp, when mixed with from four to twelve times its volume of atmospheric air, is explosive; but when the proportion is above or below these limits, it is inflammable, burning quietly with a pale blue flame. When a lighted candle is exposed in a non-explosive mixture of this gas, the flame gradually elongates, forming a conical cap, floating above the wick, which may be extinguished by cautious withdrawal without communicating the fire to the surrounding atmosphere. This method of testing for gas in the working places and wastes, which is obviously only to be trusted in skilled hands, used to be commonly practiced, but since the introduction of safety lamps it has fallen into disuse.

The principle involved in the construction of safety-lamps consists in surrounding the flame of a lamp by a protecting metal case, perforated with numerous small holes, through which the air for feeding the flame may freely enter, and the products of combustion pass out, while the passage of flame, or gases sufficiently heated to cause the ignition of the external air when laden with explosive gases, is prevented.

The danger arising from gas in the workings may be considerably increased by the presence of coal dust in the air. This point has been the subject of investigation by Galloway, who found that an explosion may be produced by ignited particles of coal dust, through the agency of a safety-lamp which, under ordinary circumstances, would be perfectly trustworthy. At Blanzey, in France, several fatal explosions have been traced to the firing of coal dust from the flame of a shot, even in cases where no fire damp was present in the workings.

An electric lamp, where the light is obtained from the ordinary incandescent lamp, has been proposed by many proprietors, instead of the ordinary safety-lamps, or for use in exploring after explosions or in bad air ways.

The drawing or winding of the coal from the pit bottom to the surface is one of the most important operations in coal mining, and probably the department in which mechanical appliances have been brought to the highest state of development. In the simplest case, where the mine is worked by levels, the train of coal may be drawn from the working faces directly to the level mouth by horse power, or in some exceptional cases locomotives worked by compressed air are used.

Assay and Analysis.—The chemical examination of

a coal may be either complete or partial. When it is desired to obtain information as to the exact composition, the analysis is conducted in the same manner as the analysis of organic compounds by combustion with oxide of copper or chromate of lead in a hard glass tube, the carbonic acid and water formed being absorbed by solution of hydrate of potassium and dry chloride of calcium respectively, and the proportion of carbon and hydrogen being calculated from the increase of weight in the tubes containing the absorbing media. It is usual to operate upon a small sample (about five grains), which is very finely powdered and placed in a small trough or boat of platinum in the tube, the combustion being aided by a stream of oxygen from a gasholder. By this means the incom-bustible residue or ash is left in a condition for weighing, being free from admixture of foreign substances. Sulphur is determined by the fusion of a weighed quantity with a mixture of salt and nitrate of potassium in a platinum vessel, producing sulphate of potassium, which, on the addition of a salt of barium, is precipitated as sulphate of barium. Care must be taken to perform the operation over a flame free from the vapor of sulphur compounds, which may vitiate the result by apparently increasing the amount of sulphur present. For this reason, the flame of a spirit lamp is to be preferred in making the fusion to that of coal gas, which is rarely free from sulphur compounds. Sulphur existing in the form of gypsum or sulphate of calcium may be removed by washing a sample with boiling water, and determining the sulphuric acid in the solution. The washed sample is then fused with niter in the usual way to determine the proportion of sulphur existing as iron pyrites. This distinction is of importance in the examination of coals intended for iron smelting, as the sulphates of the earthy metals are reduced by the gases of the furnace to sulphides, which pass into the slag without affecting the quality of the iron produced, while the sulphur of the metallic sulphides in the ash acts prejudicially upon the metal.

The difference between the original weight of the sample and that of the carbon, hydrogen, sulphur, and ash, after making allowance for hygroscopic water, is attributed to oxygen and nitrogen, which are not directly determined.

The character of the ash affords some guide to the quality of the coal from which it is derived. Thus, a red tint is generally indicative of the presence of iron pyrites, and a light or white color of its absence. Phosphorus if present will be found in the ash, and may be determined by the ordinary processes of analysis. A useful approximate method of determining the character of a coal is by exposing a coarsely powdered sample of known weight, in a covered crucible, to a strong red heat as long as inflammable vapors are given off, when it is cooled and weighed. The loss of weight represents the volatile constituents—hydrogen, oxygen and hydrocarbon gases, produced by destructive distillation, while the residual coke includes the ash, and is called fixed carbon. The character of the button of coke obtained is a good indication as to the caking or non-caking quality of the coal from which it is derived, and the amount of ash may be determined by burning it in a muffle or over the flame of a Bunsen burner. The fitness of a coal for gas making is usually determined by operating upon a sample of a few pounds' weight in a special apparatus which reproduces the processes of manufacture upon a small scale.

One of the most important factors in the economic valuation of a coal, is the so-called calorific power or

value, by which is usually understood the number of pounds of water at boiling point that can be evaporated by the complete combustion of one pound of coal. The first discovery of coal in the United States seems to have been made by the French priest and explorer Hennepin, near where Ottawa, Ill., now stands. In 1700 a boy, who had gone fishing, found the outcrop some twelve miles above Richmond, Va., which is supposed to have been the first mine commercially worked in this country.

This date is not absolutely known, but the first commercial mining is placed at about 1820, though in 1813 a poor quality of domestic coal was sold in Philadelphia at about twenty-one dollars the ton. What was called "stone-coal," meaning anthracite, was for a long time a doubtful product, and accounts of experiments with it as domestic fuel are amusing in the light of the present.

Until recently England occupied a preëminent position as the coal-producer of the world, and when geographical position is considered, does so still. But the United States is estimated to have a coal area three times greater than that of the world besides. Yet much of this coal area is as yet only partially known. Authorities of but a few years since considered all the coal fields situated in the skirts of the Rocky Mountains to contain nothing greatly better than lignites, whereas some of them have been for some years producing coking coals equal to those of Connellsville. The lignite fields near Santa Fé, New Mexico are now known to contain vast beds of anthracite whose value will sometime rival that of the fields of eastern Pennsylvania. The different qualities and values of various portions of the Missouri coal field were not known until railroads of recent construction induced careful investigation and immediate working for profit. The best coal mined in the western field recently, came from the Indian Territory. The great lignite field running north from central Colorado, through Wyoming, Dakota and Montana, may yet be found to vary extensively from its general character, as it has been found to in places further south. The area of this field is by some believed to be 200,000 square miles.

By universal custom in this country, outside of the terms used by miners, the two kinds of coal in use are known as "hard" and "soft" coal; that is, Anthracite and Bituminous. In reality these are again divided into various grades and classes, including technically some that are not coals at all, and never used as fuel, such as graphite. It was once coal, but now represents a deterioration as such which is caused by the lapse of an incalculable time. After this is an inferior quality of Anthracite, akin to graphite in fuel quality, such as that found in the Rhode Island coal basin. Approaching these two, like them but differing so much as to be of enormous value, is the Anthracite of daily use. This sometimes contains ninety-five per cent. of carbon. Kindling with difficulty, and requiring special furnaces, grate-bars and other fixtures, it is nevertheless, where obtainable as to price, the favorite household fuel, and the best of all for the smelting of iron. The comparatively limited field in which the best Anthracite lies has rendered its control by the combinations of capital easy, and at the present writing the control of the output to govern the prices it must command, and its high price as one of the necessities of daily life, are topics of a discussion which has still other subjects and wider bearings, and which is beginning to color the political action of the country. Between Anthracite and Bituminous coals there comes a class known as semibituminous,

chiefly used for making coke, though as a fuel for smith's work it is preferred to all others.

The American Bituminous coals are those which have been subjected to no local action, but have lain as they are found since the palæozoic ages. Their volatile matter varies from thirty to fifty per cent. of mass. Nearly all of our Bituminous coals are of the kind known as "coking coals." This melts and adheres in burning, and when the volatile part has escaped a mass of "coke" is left which has the properties of Anthracite in the smelting of iron. There are, however, Bituminous coals in the eastern edge of the Illinois coal field which may be used in the furnace without first coking. The *caking* coals are a still further variety of the bituminous, and *cannel* is a third. The first of these is the most extensively used fuel, cooking and gas coal. The *cannel* is mostly found in connection with, or lying in strata between, the veins of Bituminous coal. It is said to be the remains of the mud which lay in the bottoms of of the open lagoons in the old coal-marshes. Owing to comparatively low heating power the *cannel* coals are not important in manufactures. Formerly oil was procured from *cannel* to some extent by distillation, but now it is relegated chiefly to household use as a fuel for open fires, for which it has no equal.

Coal is now mined in thirty-one of the States and territories, including Alaska, whose coal beds have begun to be profitably worked. Of the entire product of both hard and soft coals in the U. S. Pennsylvania yields 57.86 per cent. of the Bituminous coals only, Illinois comes second in production, and Ohio, W. Virginia, Iowa, and Alabama come next in the order named.

The Anthracite output of the U. S. was, in 1889, 45,600,487 tons. The area of these coals worked is 985 square miles. Their territory lies in eastern Pennsylvania, within well-known narrow boundaries.

The grand total of Bituminous coals mined in the U. S. for the same year was 95,629,027 tons. The total of the entire output reaching the enormous quantity of 141,229,514 tons.

The value of this at the mine was \$160,226,323. To produce this tonnage the number of persons employed was 299,559. The wages paid these, amounts to \$112,286,099. The grand total paid for wages, material, and general expenses is estimated to be \$146,536,280. These are figures for the latest year of which the results have been tabulated, 1889.

The capital invested in mines in the U. S. and in plants and material necessary for working them, amounts to \$342,757,929.

The value of the Anthracite output, at the mines, is \$1.58 per ton. The value of the Bituminous output is \$0.99 per ton. This valuation includes the lignites.

There are many small mining-plants where operations do not reach a commercial scale. Of these local and "farmer's" mines there are 9,969, producing 2,889,286 tons, being 2.05 per cent. of the total product. The "regular" establishments number 2,583, producing all the remaining tonnage.

The product of some of the newer coal fields is much under-estimated by those accustomed only to the markets of the eastern half of the country. Colorado produced, in 1889, 2,597,181 tons, and paid miner's wages to the sum of nearly three million dollars.

The Illinois coal fields produced in that year 2,845,057 tons. Kansas produced 2,221,043 tons.

Of the Anthracite product of 1889 Pennsylvania produced 40,665,152 tons, leaving not quite five million tons to come from elsewhere. The cost of this at the mine is estimated to have been \$1.77. Of the

Bituminous coals she produced 36,174,089 tons. This is nearly twice the output of ten years previous, 1880. It cost \$0.77 per ton at the mines.

COALITION, in politics, is applied to the union of two parties, or, as it generally happens, portions of parties, not of the same opinion, who yet agree to sink their differences, and act in common.

COANZA, or QUANZA, an important river of Western Africa, in the country of Angola. It takes its rise in the Mossamba Mountains, not far from the source of the Cunene, and its total length is about 600 miles.

COAST RANGE, a mountain range, reaching from Washington to the lower Peninsula of California, and running nearly parallel with the Pacific Coast. Some of its peaks attain a height of nearly 8,000 feet.

COAST SURVEY. This important branch of government work had its beginning in 1807, and is carried on under the direction of engineer officers appointed for the purpose. Its importance to navigation cannot be overestimated.

COATBRIDGE, a town of Scotland, in the county of Lanark, and parish of Old Monkland, ten miles east of Glasgow by rail, and about two miles west of Airdrie.

COATI, or COATI-MONDI (*Nasua*), a genus of quadrupeds of the family *Ursidæ* (the bear family); by some naturalists referred to *Viverridæ* (the civet family), although their plantigrade character allies them rather to the former. They are most nearly allied to the raccoons, and, like them, are exclusively American.

COBALT, a metal of the iron group. The name is derived from the German *Kobold*, a miner's term for gnome, or evil spirit, akin to the English *goblin*, which was applied to a mineral found associated with silver ores, and often replacing them in the mines of Schneeberg and Saxony. The use of the oxide of Cobalt in coloring glass was only discovered in 1540 by Scheurer, and till then the metal had been supposed to be worthless. It was first produced, but in an imperfectly purified condition, in 1733, by Brandt.

When in a compact form cobalt is a steel-gray metal with a slightly reddish tint, taking a very high luster when polished, and breaking with a finely granular fracture. The specific gravity is variously stated at from 8.52 to 8.70. It is slightly malleable, and when quite pure of a higher degree of tenacity than iron, according to Deville. The brittle character attributed to it by former observers is due to impurities, such as arsenic and manganese. It melts at about the same temperature as iron, or a little lower, requiring the strongest heat of a wind furnace. It is susceptible of being magnetized by touch, and retains its magnetism at temperatures below a strong red heat when free from arsenic.

The alloys of cobalt are not of much importance. It combines most readily with arsenic or antimony, forming the highly crystalline compounds known by the general name of *speiss*, which can scarcely be considered as alloys. With gold and silver it forms brittle compounds, with mercury a silver-white magnetic amalgam. With copper and zinc the alloy is white, resembling the corresponding compounds of the same metals with nickel and manganese. With tin it forms a somewhat ductile alloy of a violet color. The presence of cobalt in the alloy of copper, zinc, and nickel, known as German silver, is objectionable, as it renders it hard and difficult to roll.

The chief use of cobalt in the arts is for the preparation of colors. The protoxide has an intense coloring power when vitrified, and forms the basis of all the blue colors used in glass and porcelain manufacture. The purity of the tint is much affected by traces even of other metallic oxides, especially those of iron, nickel, or copper.

On the large scale cobalt is produced chiefly as an accessory in the treatment of nickel ores. These consist chiefly of mixtures of small quantities of the purer minerals with pyrites, sulphuretted copper ores, or lead and silver ores, which require to be subjected to concentrating processes in order to get rid of the bulk of the iron, sulphur, and arsenic, and produce a small amount of enriched regulus or metal, in which the more valuable metals are in combination with sulphur and arsenic. This is done by calcination, which drives off the sulphur and arsenic combined with the iron, the latter being oxidized and subsequently converted into slag by fusion with fluxes containing silica. Small quantities of cobalt, nickel, and copper ores, when associated with lead and silver ores, are in like manner gradually accumulated in a regulus by passing the regulus of the first fusion several times through the smelting furnace, whereby the lead and silver are in great part removed. The treatment of these purified and enriched products is conducted on the large scale in a somewhat similar manner to a chemical analysis, in order to obtain both cobalt and nickel. The speiss, or regulus, is calcined and treated with strong hydrochloric acid to dissolve the oxides formed. By the addition of caustic lime, iron and arsenic are precipitated, and the clear liquid is treated with sulphuretted hydrogen so long as metallic sulphides are produced, the precipitate being allowed to settle. The solution then containing only cobalt and nickel compounds, the former is separated by the addition of bleaching powder and caustic lime as sesquioxide, Co_2O_3 , and the latter as hydrated oxide by a subsequent precipitation with lime.

The chief localities producing cobalt ores are Modum in Norway, Tunaberg in Sweden, Schneeberg in Saxony, Musen in Rhenish Prussia, and Mine Lamotte in Missouri; a considerable amount has also been obtained from Bolivia. In the Transvaal in South Africa a very pure variety of Speiss cobalt free from nickel has been recently discovered.

COBÁN, or SANTO DOMINGO COBÁN, a city of Central America, in the republic of Guatemala, and the department of Vera Paz, situated about ninety miles north of the city of Guatemala, on the direct route to Flores, not far from the source of the Rio de Cajabon, which flows into the Golfo Dolce. Cobán owes its origin to the missionary labors of the Dominicans of the sixteenth century, and more especially to Fray Pedro de Angulo, whose portrait is preserved in the cathedral. It was made the political capital of the province of Vera Paz, and has (1890) a population of 12,000.

COBBETT, WILLIAM (1766–1835), one of the most vigorous of English political writers, was born near Farnham in Surrey, according to his own statement, on the 9th March, 1766. At the age of sixteen, inspired with patriotic feeling by the sight of the men-of-war in Portsmouth harbor, he offered himself as a sailor; and at seventeen (May, 1783) having, while on his way to Guildford fair, met the London coach, he suddenly resolved to accompany it to its destination. He arrived at Ludgate Hill with exactly half-a-crown in his pocket, but an old gentleman who had traveled with him invited him to his house, and obtained for him the situation of copying clerk in an attorney's office. He greatly disliked his new occupation; and rejecting all his father's entreaties that he would return home, he went down to Chatham early in 1784 with the intention of joining the marines. By some mistake, however, he was enlisted in a regiment of the line, which rather more than a year after proceeded to St. John's, New Brunswick. All his leisure time during the months he remained at Chatham was devoted to reading the contents of the circulating library of the town, and getting

up by heart Lowth's *English Grammar*. His uniform good conduct, and the power of writing correctly which he had acquired, quickly raised him to the rank of corporal, from which, without passing through the intermediate grade of sergeant, he was promoted to that of sergeant-major. In November, 1791, he was discharged at his own request, and received the official thanks of the major and the general who signed his discharge. But Cobbett's connection with the regiment did not end in this agreeable manner. He brought a serious charge against some of its officers, and instead of appearing at the trial, fled to France (March, 1792). The inquiry which was held in his absence resulted in a complete acquittal of the accused.

In the previous February Cobbett had married the daughter of a sergeant-major of artillery; he had met her some years before in New Brunswick, and had proved her to be endowed with energy and self-control equal to his own. In September of the same year (1792) he crossed to the United States, and for a time supported himself at Wilmington by teaching English to French emigrants. Among these was Talleyrand, who employed him, according to Cobbett's story, not because he was ignorant of English, but because he wished to purchase his pen. Cobbett made his first literary sensation by his *Observations on the Emigration of a Martyr to the Cause of Liberty*, a clever retort on Dr. Priestley, who had just landed in America complaining of the treatment he had received in England. This pamphlet was followed by a number of papers, signed "Peter Porcupine," and entitled *Prospect from the Congress Gallery*, the *Political Censor*, and the *Porcupine's Gazette*. In the spring of 1796, having quarreled with his publisher, he set up in Philadelphia as bookseller and publisher of his own works. On the day of opening, his windows were filled with prints of the most extravagant of the French Revolutionists and of the founders of the American Republic placed side by side, along with portraits of George III., the British ministers, and any one else he could find likely to be obnoxious to the people; and he continued to pour forth praises of Great Britain and scorn of the institutions of the United States, with special abuse of the French party. Abuse and threats were of course in turn showered upon him, and in August, for one of his attacks on Spain, he was prosecuted, though unsuccessfully, by the Spanish ambassador. Immediately on this he was taken up for libels upon American statesmen, and bound in recognizances to the amount of \$4,000, and shortly after he was prosecuted a third time for saying that a certain Dr. Rush, who was much addicted to bleeding, killed nearly all the patients he attended. The trial was repeatedly deferred, and was not settled till the end of 1799, when he was fined \$5,000. After this last misfortune, for a few months Cobbett carried on a newspaper called the *Rushlight*; but in June, 1800, he set sail for England.

At home he found himself regarded as the champion of order and monarchy. Windham invited him to dinner, introduced him to Pitt, and begged him to accept a share in the *True Briton*. He refused the offer and joined an old friend, John Morgan, in opening a bookshop in Pall Mall. For some time he published the *Porcupine's Gazette*, which was followed in January, 1802, by the *Weekly Political Register*. In 1801 appeared his Letters to Lord Hawkesbury (afterward earl of Liverpool) and Mr. Addington, in opposition to the peace of Amiens, the terms of which had been agreed to by the former on behalf of Great Britain in the October of that year, but which was not finally concluded till 1802. On the conclusion of the peace Cobbett made a still bolder protest; he determined to take no part in the general illumination, and — assisted by the sympathy

of his wife, who, being in delicate health, removed to the house of a friend—he carried out his resolve, allowing his windows to be smashed and his door broken open by the angry mob. The *Letters to the Rt. Hon. Henry Addington* are among the most polished and dignified of Cobbett's writings; but by 1803 he was once more revelling in personalities. The government of Ireland was singled out for wholesale attack; and a letter published in the *Register* remarked of Hardwicke, the lord-lieutenant, that the appointment was like setting the surgeon's apprentice to bleed the pauper patients. For this, though not a word had been uttered against Hardwicke's character, Cobbett was fined £500; and two days after the conclusion of this trial a second commenced, at the suit of Plunkett, the solicitor-general for Ireland, which resulted in a similar fine. About this time he began to write in support of Radical views; and to cultivate the friendship of Sir Francis Burdett, from whom he received considerable sums of money, and other favors, for which he gave no very grateful return. In 1809 he was once more in the most serious trouble. He had bitterly commented on the flogging of some militia, because their mutiny had been repressed and their sentence carried out by the aid of a body of German troops, and in consequence he was fined £1,000 and imprisoned for two years. His indomitable vigor was never better displayed. He still continued to publish the *Register*, and to superintend the affairs of his farm; a hamper containing specimens of its produce and other provisions came to him every week; and he amused himself with the company of some of his children and with weekly letters from the rest. On his release a public dinner, presided over by Sir F. Burdett, was held in honor of the event. He returned to his farm at Botley in Hampshire, and continued in his old course, extending his influence by the publication of the *Twopenny Trash*, which, not being periodical, escaped the newspaper stamp tax. Meanwhile, however, he had contracted debts to the amount of £34,000 (for it is said that, notwithstanding the aversion he publicly expressed to paper currency, he had carried on his business by the aid of accommodation bills to a very large amount); and in March, 1817, he fled to the United States. But his pen was as active as ever; from Long Island the *Register* was regularly dispatched to England; and it was here that he wrote his clear and interesting *English Grammar*, of which 10,000 copies were sold in a month.

His return to England was accompanied by his weakest exhibition—the exhuming and bringing over of the bones of Thomas Paine, whom he had once heartily abused, but on whom he now wrote a panegyric ode. Nobody paid any attention to the affair; the relics he offered were not purchased; and the bones were reinterred. Cobbett died in 1835.

COBDEN, RICHARD, was born at a farm-house called Dunford, near Midhurst, in Sussex, on the 3d of June, 1804. His grandfather was a maltster in that town, an energetic and prosperous man, almost always the bailiff or chief magistrate, and taking rather a notable part in county matters. But his father, forsaking that trade, took to farming at an unpropitious time. He was amiable and kind-hearted, and greatly liked by his neighbors, but not a man of business habits, and he did not succeed in his farming enterprise. He died when his son Richard was a child, and the care of the family devolved upon the mother, who was a woman of strong sense and of great energy of character, and who, after her husband's death, left Dunford and returned to Midhurst.

The educational advantages of Richard Cobden were not very ample. When fifteen or sixteen years of age he went to London to the warehouse of Messrs. Partidge

and Price, in East Cheap, one of the partners being his uncle. His relative noting the lad's passionate addiction to study, solemnly warned him against indulging such a taste, as likely to prove a fatal obstacle to his success in commercial life. Happily the admonition was unheeded, for while unweariedly diligent in business, as his rapid after-success abundantly proved, he was in his intervals of leisure a most assiduous student. During his residence in London he found access to the London Institution, and made ample use of its large and well-selected library.

When he was about twenty years of age he became a commercial traveler, and throwing into that, as he ever did into whatever his hands found to do, all the thoroughness and vigor of his nature, he soon became eminently successful in his calling. But never content to sink into the mere trader, he sought to introduce among those he met on the "road" a higher tone of conversation than usually marks the commercial room, and there were many of his associates who, when he had attained eminence, recalled the discussions on political economy and kindred topics with which he was wont to enliven and elevate the travelers' table. In 1830 Cobden learned that Messrs. Fort, calico printers at Sabden, near Clitheroe, were about to retire from business, and he, with two other young men, Messrs. Sheriff and Gillet, who were engaged in the same commercial house as himself, determined to make an effort to acquire the succession. They had, however, very little capital among them. But it may be taken as an illustration of the instinctive confidence which Cobden through life inspired in those with whom he came into contact, that Messrs. Fort consented to leave to these untried young men a large portion of their capital in the business. Nor was their confidence misplaced. The new firm had soon three establishments—one at Sabden, where the printing works were, one in London, and one in Manchester, for the sale of their goods. This last was under the direct management of Cobden, who, in 1830 or 1831, settled in the city with which his name became afterward so closely associated. The success of this enterprise was decisive and rapid, and the "Cobden prints" soon became known through the country as of rare value both for excellence of material and beauty of design. There can be no doubt that if Cobden had been satisfied to devote all his energies to commercial life, he might soon have attained to great opulence; for it is understood that his share in the profits of the business he had established amounted to from £8,000 to £10,000 a year. But he had other tastes, which impelled him irresistibly to pursue those studies which, as Lord Bacon says, "serve for delight, for ornament, and for ability." Mr. Prentice, the historian of the Anti-Corn-Law League, who was then editor of the *Manchester Times*, describes how, in the year 1835, he received for publication in his paper a series of admirably written letters, under the signature of "Libra," discussing commercial and economical questions with rare ability. After some time he discovered that the author of these letters was Cobden, whose name was until then quite unknown to him.

In 1835 he published his first pamphlet, entitled *England, Ireland and America, by a Manchester Manufacturer*. It attracted great attention, and ran rapidly through several editions. It was marked by a breadth and boldness of views on political and social questions which betokened an original mind. In this production Cobden advocated the same principles of peace, non-intervention, retrenchment, and free trade to which he continued faithful to the last day of his life. Immediately after the publication of this pamphlet, he paid a visit to the United States, landing in New York on the 7th June, 1835. He devoted about three months to this

tour, passing rapidly through the seaboard states and the adjacent portion of Canada, and collecting, as he went, large stores of information respecting the condition, resources, and prospects of the great Western Republic. From the year 1837 Cobden became a conspicuous figure in Manchester, taking a leading part in the local politics of the town and district. Largely owing to his exertions, the Manchester Athenæum was established, at the opening of which he was chosen to deliver the inaugural address. He became a member of the Chamber of Commerce, and soon infused new life into that body. He threw himself with great energy into the agitation which led to the incorporation of the city, and was elected one of its first aldermen. He began also to take a warm interest in the cause of popular education. Some of his first attempts in public speaking were at meetings which he convened at Manchester, Salford, Bolton, Rochdale, and other adjacent towns, to advocate the establishment of British schools. It was while on a mission for this purpose to Rochdale that he first formed the acquaintance of Mr. John Bright, who afterwards became his distinguished coadjutor in the free trade agitation.

In 1838 an Anti-Corn-Law Association was formed at Manchester, which, on his suggestion, was afterwards changed into a national association, under the title of the Anti-Corn-Law League. This is not the place to recount the history of that famous association, of which from first to last Cobden was the presiding genius and the animating soul. During the seven years between the formation of the league and its final triumph, he devoted himself wholly to the work of teaching his countrymen sound economical doctrines, for the agitation which he and his associates conducted with such signal ability and success was preëminently an educational agitation.

In 1841, Sir Robert Peel, having defeated the Melbourne ministry in Parliament, there was a general election, when Cobden was returned for Stockport. His opponents had confidently predicted that he would fail utterly in the House of Commons. He did not wait long, after his admission into that assembly, in bringing their predictions to the test. Parliament met on the 19th August. On the 24th, in course of the debate on the address, Cobden delivered his first speech.

From that day he became an acknowledged power in the House, and though addressing a most unfriendly audience, he compelled attention by his thorough mastery of his subject, and by the courageous boldness with which he charged the ranks of his adversaries. He soon came to be recognized as one of the foremost debaters on those economical and commercial questions which at that time so much occupied the attention of Parliament; and the most prejudiced and bitter of his opponents were fain to acknowledge that they had to deal with a man whom the most practiced and powerful orators of their party found it hard to cope with, and to whose eloquence, indeed, the great statesman in whom they put their trust was obliged ultimately to surrender. On the 17th of February, 1848, an extraordinary scene took place in the House of Commons. Cobden had spoken with great fervor of the deplorable suffering and distress which at that time prevailed in the country, for which, he added, he held Sir Robert Peel, as the head of the Government, responsible. This remark, when it was spoken, passed unnoticed, being indeed nothing more than one of the commonplaces of party warfare. But a few weeks before, Mr. Drummond, who was Sir Robert Peel's private secretary, had been shot dead in the street by a lunatic. In consequence of this, and the manifold anxieties of the time with which he was harassed, the

mind of the great statesman was no doubt in a moody and morbid condition, and when he arose to speak later in the evening, he referred in excited and agitated tones to the remark, as an incitement to violence against his person. Sir Robert Peel's party, catching at this hint, threw themselves into a frantic state of excitement, and when Cobden attempted to explain that he meant official, not personal responsibility, they drowned his voice with clamorous and insulting shouts. But Peel lived to make ample and honorable amend for this unfortunate ebullition, for not only did he "fully and unequivocally withdraw the imputation which was thrown out in the heat of debate under an erroneous impression," but when the great free-trade battle had been won, he took the wreath of victory from his own brow, and placed it on that of his old opponent, in the following graceful words:—"The name which ought to be, and will be associated with the success of these measures, is not mine, or that of the noble Lord (Russell), but the name of one who, acting I believe from pure and disinterested motives, has, with untiring energy, made appeals to our reason, and has enforced those appeals with an eloquence the more to be admired because it was unaffected and unadorned; the name which ought to be chiefly associated with the success of these measures is the name of Richard Cobden." Cobden had, indeed, with unexampled devotion, sacrificed his business, his domestic comforts, and for a time his health to the public interests. His friends therefore felt, at the close of that long campaign, that the nation owed him some substantial token of gratitude and admiration for those sacrifices. No sooner was the idea of such a tribute started than liberal contributions came from all quarters, which enabled his friends to present him with a sum of £80,000. Had he been inspired with personal ambition, he might have entered upon the race of political advancement with the prospect of attaining the highest official prizes. Lord John Russell, who, soon after the repeal of the corn laws, succeeded Sir Robert Peel as first minister, invited Cobden to join his Government. But he preferred keeping himself at liberty to serve his countrymen unshackled by official ties, and declined the invitation. He withdrew for a time from England. His first intention was to seek complete seclusion in Egypt or Italy, to recover health and strength after his long and exhausting labors. But his fame had gone forth throughout Europe, and intimations reached him from many quarters that his voice would be listened to everywhere with favor, in advocacy of the doctrines to the triumph of which he had so much contributed at home.

He visited in succession France, Spain, Italy, Germany, and Russia. He was received everywhere with marks of distinction and honor. In many of the principal capitals he was invited to public banquets, which afforded him an opportunity of propagating those principles of which he was regarded as the apostle.

When Cobden returned from the Continent he addressed himself to what seemed to him the logical complement of free trade, namely, the promotion of peace and the reduction of naval and military armaments. His abhorrence of war amounted to a passion. Throughout his long labors in behalf of unrestricted commerce he never lost sight of this as being the most precious result of the work in which he was engaged—its tendency to diminish the hazards of war and to bring the nations of the world into closer and more lasting relations of peace and friendship with each other. He was not deterred by the fear of ridicule or the reproach of Utopianism from associating himself openly, and with all the ardor of his nature, with the peace party in England. In 1849 he brought forward a proposal in Parliament in favor of international arbitration, and in 1851 a mo-

tion for mutual reduction of armaments. He was not successful in either case, nor did he expect to be. In pursuance of the same object, he identified himself with a series of remarkable peace congresses — international assemblies designed to unite the intelligence and philanthropy of the nations of Christendom in a league against war — which from 1848 to 1851 were held successively in Brussels, Paris, Frankfort, London, Manchester, and Edinburgh.

In 1857 he paid another visit to the United States. During his absence the general election of 1859 occurred, when he was returned unopposed for Rochdale. Lord Palmerston was again prime minister, and having discovered that the advanced Liberal party was not so easily "crushed" as he had apprehended, he made overtures of reconciliation, and invited Cobden and Milner Gibson to become members of his government. In a frank, cordial letter which was delivered to Cobden on his landing in Liverpool, Lord Palmerston offered him the Presidency of the Board of Trade, with a seat in the Cabinet. Many of his friends urgently pressed him to accept; but without a moment's hesitation he determined to decline the proposed honor. On his arrival in London he called on Lord Palmerston, and with the utmost frankness told him that he had opposed and denounced him so frequently in public, and that he still differed so widely from his views, especially on questions of foreign policy, that he could not, without doing violence to his own sense of duty and consistency, serve under him as minister. Lord Palmerston tried good-humoredly to combat his objections, but without success.

But though he declined to share the responsibility of Lord Palmerston's administration, he was willing to act as its representative in promoting freer commercial intercourse between England and France. But the negotiations for this purpose originated with himself in conjunction with Mr. Bright and M. Michel Chevalier. Toward the close of 1859 he called upon Lord Palmerston, Lord John Russell, and Mr. Gladstone, and signified his intention to visit France, and get into communication with the emperor and his ministers, with a view to promote this object. These statesmen expressed in general terms their approval of his purpose, but he went entirely on his own account, clothed at first with no official authority. His name, however, carried an authority of its own. On his arrival in Paris he had a long audience with Napoleon, in which he urged many arguments in favor of removing those obstacles which prevented the two countries from being brought into closer dependence on one another, and he succeeded in making a considerable impression on his mind in favor of free trade. He then addressed himself to the French ministers, and had much earnest conversation, especially with M. Fould, *Ministre d'État*, and M. Rouher, minister of commerce, both of whom, and especially the latter, he found well inclined to the economical and commercial principles which he advocated. After a good deal of time spent in these preliminary and unofficial negotiations, the question of a treaty of commerce between the two countries having entered into the arena of diplomacy, Cobden was requested by the British Government to act as their plenipotentiary in the matter in conjunction with Lord Cowley, their ambassador in France. But it proved a very long and laborious undertaking. He had to contend with the bitter hostility of the French protectionists, which occasioned a good deal of vacillation on the part of the emperor and his ministers. There were also delays, hesitations, and cavils at home, which were more inexplicable. He was, moreover, assailed with great violence by a powerful section of the English press, while the large number of minute details with which he had

to deal in connection with proposed changes in the French tariff, involved a tax on his patience and industry which would have daunted a less resolute man. But there was one source of embarrassment greater than all the rest. One strong motive which had impelled him to engage in this enterprise was his anxious desire to establish more friendly relations between England and France, and to dispel those feelings of mutual jealousy and alarm which were so frequently breaking forth and jeopardizing peace between the two countries. This was the most powerful argument with which he had plied the emperor and the members of the French Government, and which he had found most efficacious with them. But unhappily, while he was in the very thick of the negotiations, Lord Palmerston brought forward in the House of Commons a measure for fortifying the naval arsenals of England, which he introduced in a warlike speech pointedly directed against France, as the source of danger of invasion and attack, against which it was necessary to guard. This produced irritation and resentment in Paris, and but for the influence which Cobden had acquired, and the perfect trust reposed in his sincerity, the negotiations would probably have been altogether wrecked. At last, however, after nearly twelve months' incessant labor, the work was completed in November, 1860.

On the conclusion of this work honors were offered to Cobden by the Governments of both the countries which he had so greatly benefited. Lord Palmerston offered him a baronetcy and a seat in the Privy Council, and the emperor of the French would gladly have conferred upon him some distinguished mark of his favor. But with characteristic disinterestedness and modesty he declined all such honors.

It has already been remarked that Cobden's efforts in furtherance of free trade were always subordinated to the highest moral purposes — the promotion of peace on earth and good-will among men. This was his desire and hope as respects the Commercial Treaty with France.

There was one other conspicuous service which Cobden rendered, or tried to render, to his country before his death. When the great civil war threatened to break out in the United States, it was matter to him of profound affliction. But after the conflict became inevitable his sympathies were wholly with the North, because the South was fighting for slavery. His great anxiety, however, was that the British nation should not be committed to any unworthy course during the progress of that struggle. And when the British relations with America were becoming critical and menacing in consequence of the depredations committed on American commerce by vessels issuing from British ports, he brought the question before the House of Commons in a series of speeches of rare clearness and force, in which he pointed out the perilous responsibilities we were incurring by connivance or neglect in regard to those vessels. He was first attacked with great animosity both in and out of Parliament for taking this line, but after results amply vindicated his political sagacity and patriotism.

For several years Cobden had been suffering severely at intervals from bronchial irritation and a difficulty of breathing. Owing to this he had spent the winter of 1860 in Algeria, and every subsequent winter he had to be very careful and confine himself to the house, especially in damp and foggy weather. In November, 1864, he went down to Rochdale and delivered a speech to his constituents — the last he ever delivered. That effort was followed by great physical prostration, and he determined not to quit his retirement at Midhurst until spring had fairly set in. But in the month of March

there were discussions in the House of Commons on the alleged necessity of constructing large defensive works in Canada. He was deeply impressed with the folly of such a project, and he was seized with a strong desire to go up to London and deliver his sentiments on the subject. But on the 21st of March, the day on which he left home, a bitter easterly wind blew, and struck him in the throat and chest. He recovered a little for a few days after his arrival in London; but on the 29th there was a relapse, and on the 2d of April, 1865, he expired peacefully at his apartments in Suffolk Street.

On the following day there was a remarkable scene in the House of Commons. When the clerk read the orders of the day, Lord Palmerston rose, and in impressive and solemn tones declared "it was not possible for the House to proceed to business without every member recalling to his mind the great loss which the House and country had sustained by the event which took place yesterday morning." He then paid a generous tribute to the virtues, the abilities, and services of Cobden, and he was followed by Mr. Disraeli, who with great force and felicity of language delineated the character of the deceased statesman, who, he said, "was an ornament to the House of Commons and an honor to England." Mr. Bright also attempted to address the House, but after a sentence or two delivered in a tremulous voice, he was overpowered with emotion, and declared he must leave to a calmer moment what he had to say on the life and character of the manliest and gentlest spirit that ever quitted or tenanted a human form.

COBIJA, or, as it is officially called in honor of the first president of the republic, PUERTO LA MAR, is the principal port of Bolivia, and the chief town of the province of Atacama or Cobija. It is situated on the coast of the Pacific, about 800 miles north of Valparaiso in Chili, and it occupies a low-lying position on the beach, at the foot of a lofty range of hills. The surrounding district is desolate in the extreme, and Cobija is totally dependent on importation even for the common necessities of life. Water is very scarce; the wells only satisfy the wants of about 400 or 500 persons, and the rest of the population has to be supplied by the distillation of the salt water from the sea. At one time fish formed a valuable article of consumption; but since the rise of the mining industries the fishers have for the most part forsaken their nets. The town itself is poorly built, and consists of little more than one broad, long street. It owes its foundation in the course of last century to Charles III. of Spain; it was declared a free port in 1827; and it attained the rank of capital of the department in 1837. In 1827 it consisted of little more than a few huts inhabited by Changas, or sea-faring Indians; and in 1855 it only numbered 500 or 600 of a population. In 1878, however, the permanent inhabitants were no fewer than 2,000, and the floating population amounted to 4,000 souls.

COBLENTZ (German, *Coblenz*), the capital of Rhenish Prussia, is pleasantly situated at the confluence of the Rhine and Moselle. From this circumstance it derived its ancient name of *Confluentes*, of which Coblenz is a corruption. This city is still of consequence from a military point of view, since it commands the junction of two great rivers. Its fortifications, which are very extensive, not only protect the town, but connect the works on the left bank of the Rhine with the fortress of Ehrenbreitstein on the other side of the river. The city is almost triangular in shape; two sides are bounded by the Rhine and Moselle, the third by strong fortifications. Coblenz is a free port, and carries on an extensive commerce by means of the Rhine, Moselle, and Lahn. Being in the center of the hock wine district, a large trade in this class of produce is carried on

with Great Britain, Holland, and other countries. The population is 28,000.

COBOURG, a port of entry, and the capital of Northumberland county, Ontario, Canada, is situated on Lake Ontario, sixty-nine miles northeast of Toronto. It is at the junction of several railroads, contains fine public buildings, and is regularly laid out and lighted with gas. A Wesleyan University and other educational institutions are located here. The manufactures include woolen goods, railroad cars, and beer, and there are several foundries and mills, three branch banks, and three newspaper offices. Population (1890), 5,000.

COBRA, a poisonous Colubrine Snake, belonging to the family *Elapidae*, known also as the Hooded Snake, or Cobra di Capello. In this species the anterior ribs are elongated, and by raising and bringing forward these, the neck, which otherwise is not distinct from the head, can be expanded at will into a broad disc or hood, the markings on which bear a striking resemblance to a pair of barnacles, hence the name "Spectacle Snake" also applied to the cobra. It possesses two rows of palatal teeth in the upper jaw, while the maxillary bones bear the fangs, of which the anterior one only is in connection with the poison gland, the others in various stages of growth remaining loose in the surrounding flesh until the destruction of the poison fang brings the one immediately behind to the front, which then gets ankylosed to the maxillary bone, and into connection with the gland secreting the poison, which in the cobra is about the size of an almond. Behind the poison fangs there are usually one or two ordinary teeth. The cobra attains a length of nearly six feet and a girth of about six inches, and with the exception of the markings on the hood is of a uniform brown color above and bluish-white beneath. There are, however, many distinct varieties, in some of which the spectacle markings on the hood are wanting. The cobra may be regarded as nocturnal in its habits, being most active by night, although not infrequently found in motion during the day. It usually conceals itself under logs of wood, in the roofs of huts, and in holes in old walls and ruins, where it is often come upon inadvertently, inflicting a death wound before it has been observed. It feeds on small quadrupeds, frogs, lizards, insects, and the eggs of birds, in search of which it sometimes ascends trees. When seeking its prey it glides slowly along the ground holding the anterior third of its body aloft, with its hood distended, on the alert for anything that may come in its way. "This attitude," says Sir J. Fayrer, "is very striking, and few objects are more calculated to inspire awe than a large cobra when, with its hood erect, hissing loudly, and his eyes glaring, he prepares to strike." It is said to drink large quantities of water, although, like reptiles in general it will live for many months without food or drink. The cobra is oviparous; and its eggs, which are from eighteen to twenty-five in number, are of a pure white color, somewhat resembling in size and appearance the eggs of the pigeon, but sometimes larger. These it leaves to be hatched by the heat of the sun. It is found in all parts of India, from Ceylon to the Himalayas, where it occurs at a height of 8,000 feet, and it is justly regarded as the most deadly of the Indian Thanatophidia. A large proportion of the deaths from snake bite, where the species inflicting the wound has been ascertained, is shown to be due to the cobra; and it is estimated that fully one-half of the 20,000 deaths that annually occur in India from this cause may be attributed to this unluckily common species. The bite of a vigorous cobra will often prove fatal in a few minutes, and as there is no known antidote to the poison, it is only in rare instances that such mechanical expedients as cau-

terizing, constriction, or amputation can be applied with sufficient promptitude to prevent the virus from entering the circulation. Great numbers, especially of young cobras, are killed by the adjutant birds and by the mungoos — a small mammal which attacks it with impunity, apparently not from want of susceptibility to the poison, but by its dexterity in eluding the bite of the cobra. Mere scratching or tearing does not appear to be sufficient to bring the poison from the glands; it is only when the fangs are firmly implanted by the jaws being pressed together that the virus enters the wound, and in those circumstances it has been shown by actual experiment that the mungoos, like all other warm-blooded animals, succumbs to the poison. In the case of reptiles, the cobra poison takes effect much more slowly, while it has been proved to have no effect whatever on other venomous serpents. The cobra is the snake usually exhibited by the Indian jugglers, who show great dexterity in handling it, even when not deprived of its fangs. Usually, however, the front fang at least is extracted, the creature being thus rendered harmless until the succeeding tooth takes its place, and in many cases all the fangs, with the germs behind, are removed — the cobra being thus rendered innocuous for life. The snake charmer usually plays a few simple notes on the flute, and the cobra apparently delighted, rears half its length in the air and sways its head and body about, keeping time to the music. The cobra, like almost all poisonous snakes, is by no means aggressive, and when it gets timely warning of the approach of man endeavors to get out of his way. It is only when trampled upon inadvertently, or otherwise irritated, that it attempts to use its fangs. It is a good swimmer, often crossing broad rivers, and probably even narrow arms of the sea, for it has been met with at sea at least a quarter of a mile from land.

COBURG, or in German *Koburg*, the capital of the duchy of Saxe-Coburg-Gotha and, alternately with Gotha, the residence of the duke and the seat of the administration, is situated on the left bank of the Itz, an affluent of the Regen, and on the southern slope of the Frankenwald, 40 miles S.S.E. of Gotha. The town is for the most part old, and contains a large number of remarkable buildings. On a commanding eminence in the vicinity is the ancient castle of Coburg, which dates at least from the 11th century. Till 1348 it was the residence of the counts of Henneberg, and till 1547 belonged to the dukes of Saxony; in 1781 it was turned into a penitentiary and lunatic asylum; but in 1835-8 it received a complete restoration. The most interesting room in this building is that which was occupied by Luther for three months in 1530, and thus became the birthplace of his famous hymn, *Eine feste Burg ist unser Gott*; the bed on which he slept and the pulpit from which he preached in the old chapel are still shown. Coburg is a place of considerable industry, and possesses a large brewery, factories for the weaving of linen and cotton goods, tanneries, and dye-works; and there is an important trade in the cattle reared in the neighborhood. Population, 14,000.

COCA. See CUCA.

COCCEIUS, or COCH, JOHANN (1603-1669), a Dutch theologian, was born at Bremen. After studying at Hamburg and Franeker he became in 1629 professor of Hebrew in his native town. In 1636 he was transferred to Franeker, where he held the chair of Hebrew, and from 1643 the chair of theology also, until 1650, when he became professor of theology at Leyden. He died on the 4th November, 1669. Cocceius was a profound Oriental scholar, and his chief services were rendered in the department of Hebrew philology and exegesis.

COCHABAMBA, a city and bishop's see of Bolivia, capital of a province and department, is situated about 8,370 feet above the level of the sea, on both banks of the Rio de la Rocha, a sub-tributary of the Rio Grande, to the south of a considerable Cordillera. It is about 122 miles N.N.W. of Surcre. The population is largely composed of Indians; and the prevailing language is Quichua. Cochabamba was founded in the sixteenth century, and for a time was called Oropesa. In the revolution of 1815 the women of the city distinguished themselves by their bravery, and successfully attacked the Spanish camp; and in 1818 a number of the heroines were put to death by the Spanish forces. In 1874 the city was seized by Miguel Aguirre, and a large part of it laid in ruins, but peace was soon afterward restored, and the regular authorities reinstated. The population in 1858 was 40,678.

COCHIN, a feudatory state of Southern India, situated within the presidency of Fort St. George or Madras. The state, which is of irregular shape, is bounded on the W. N. and E. by the districts of South Malabar and Coimbatore, and for some distance on the W. by the Indian Ocean; on the S. it is bounded by the state of Travancore. Cochin contains a total area of 1,361 square miles, and a population of 598,353. The state is divided into seven *taluks*, or subdistricts, viz., Cochin, Cannanore, Mugundapuram, Trichur, Tallapalli, Chitur, and Cranganore.

Cochin consists for the most part of a maritime lowland hemmed in between the sea and the *Ghâts*. It includes, however, the mountains which thus wall it out from inner India, and the lower portion is copiously watered by the torrents which pour down them. These torrents dwindle in the hot weather to rivulets, but during the rains they swell into great cataracts, rising in one instance at least sixteen feet in twenty-four hours. On the lowlands, they unite as elsewhere on the western coast into shallow lakes or "backwaters," lying behind the beach line and below its level. In the monsoon the Cochin backwaters are broad, navigable channels and lakes; in the hot weather they contract into shallows in many places not two feet deep. The vegetation is luxuriant; rich crops of rice are grown on the lowlands; the hills send down vast quantities of timber by means of the torrents. The remains of once fine forests of teak are preserved in the northeastern corner of the state, and still form a considerable source of wealth. Coffee has of late years received much attention and promises well. The other products are the usual ones of an Indian state,—cotton, pepper, betel-nut, chillies, ginger, various spices, cardamoms, arrowroot, &c.

COCHIN, a town and port of British India, belonging to the Malabar district of Madras. The town lies at the northern extremity of a strip of land about twelve miles in length, but at few places more than a mile in breadth, which is nearly insulated by inlets of the sea and estuaries of streams flowing from the Western Ghâts. These form the Cochin backwater described in the article on the Cochin state. The town of Cochin is about a mile in length by half a mile in breadth. Its first European possessors were the Portuguese, from whom it was captured by the Dutch in 1663, under whom the town prospered exceedingly. In 1796 Cochin was captured from the Dutch by the British, and in 1806 the fortifications and public buildings were blown up by order of the authorities. The explosion destroyed much private property, and for a long time seriously affected the prosperity of the town. Under Dutch rule Cochin was very populous, containing Europeans, Moplás or Musalmáns, Hindus, Arabs, Persians, and Christians of various sects, comprising natives, Armenians, Indo-Portuguese, and those denominated Syrian Christians.

The Jews have also a settlement here. They are of two classes, the Fair or White Jews, of more recent arrival and settlement in the country, and the Black Jews, who reside apart in a village outside the town.

COCHIN CHINA, a name applied to the eastern division of the Indo-Chinese peninsula, composed of the territories of Anam proper, Tong-king, and the French colony of Cochin China. It forms a long strip of country which stretches in an arc of a circle along a coast-line of 1,240 miles. With a breadth of 372 miles in the north of Tong-king, it is afterwards narrowed by a chain of mountains parallel to the China Sea, and has no more than fifty miles of breadth in the greater part of the kingdom of Hué; but in Lower Cochin China it widens out again to about 190 miles. The boundaries are—on the N. the Chinese provinces of Yun-nan and Kwang-se, on the E. and S. the China Sea, on the W. the Gulf of Siam, the kingdom of Cambodia, and the Laos country tributary to the Siamese Empire. According to the most probable estimates the empire of Anam has an area of from 190,000 to 230,000 square miles, or about the same extent as France; while the French colony occupies about 21,630. The western limits of this empire are, however, very imperfectly determined, and the regions to the west of Tong-king are still unexplored. The N. of Cochin China is washed by the Gulf of Tong-king, a great inlet formed by the coast of Tong-king on the W. and the island of Hainan and the peninsula of Lien-chow on the E. At its mouth, toward Tiger Island and the S.W. part of Hainan, the gulf has a breadth of about 138 English miles, which almost represents its medium breadth. Near the west coast are several islands, and toward the head of the gulf a great number of islets and banks. From soundings which have been taken throughout its whole extent, it has been found that in the middle of the entrance there is a depth of from 210 to 330 feet, which diminishes toward the coasts; and the depth is less half-way up the gulf, where the bottom is generally soft.

The kingdom of Anam, closely shut in between the mountains and the sea, is drained by numerous but unimportant streams. Lower Cochin China, or French Cochin China, is abundantly watered by the numerous mouths and the canals which form the delta of the Mekong or Cambodia. This river takes its rise in the mountains of Thibet, waters the southern provinces of China and the district of Laos tributary to Siam, and crosses through the kingdom of Cambodia, where it divides into three branches.

The climate of the north of Anam differs much from that of the south. In Tong-king, though it is usual to divide the year into a dry and a wet season, there is properly speaking no dry season. Summer corresponds to the period of the rains from the end of April to the month of August; and at that time it is excessively hot. Storms are frequent, and the coasts are often visited by typhoons. At the same time Tong-king is a healthy country; the weather during four months is excellent; and the French colony of Saigon might find there—what has never been discovered in Cochin China proper—a suitable site for a sanitarium. The climate of the French colony is unhealthy for Europeans; they cannot be acclimatized. The mortality of the troops is rather high; and before their residence was shortened to two years it might be calculated at 9 or 10 per cent. for a three years' residence. The chief cause of the maladies which effect Europeans is the character of the soil. On the banks of the rivers, in the salt marshes, and along the shores of the sea, intermittent fevers of great severity are frequent. In the forest land

rages the terrible wood-fever, from which the native himself cannot escape, though he lives unharmed in the midst of the rice swamps. But the great plague of Lower Cochin China is dysentery,—a disease which, endemic in all warm countries, proves in Cochin China particularly fatal. It is to it that the greater part of the deaths among Europeans are to be ascribed; and they often succumb to its effects after their return to their native country. Most of the children born of European parents in Cochin China die a short time after birth. White women are there exposed to many dangers, especially during their delivery; and there is consequently little hope of forming there a race of creoles. The native women, on the contrary, are very prolific, and suffer surprisingly little in childbirth. It is also interesting to observe that the Anamites, like the races of the extreme East, recover from wounds of the greatest severity, which would infallibly kill Europeans even in their own country.

What renders the climate peculiarly injurious and enervating is that, besides the very slight difference between the temperatures of day and night, the hygrometric readings are always very high. The surface of Cochin China, composed of recent alluvial deposits, is absolutely flat, and in some places is below the level of the sea. The slightness of the slope of this vast plain allows the tide to advance far inland, and the borders of the rivers to be alternately covered with water, and exposed to the perpendicular rays of the sun. All the coasts are covered by mangroves (the marsh-tree of the tropics), which with their dull monotonous foliage everywhere betoken the unhealthiness of the soil.

The finest species of tiger, the royal tiger, is to be met with from the mountains which bound Tong-king on the north as far as the south of Lower Cochin China; and a short time ago it was still to be found in the wooded hills close to Saigon. The other wild animals are the panther, the rhinoceros, the elephant—which the people of Anam have not learned to domesticate—the cocoanut bear, the stag, the wild boar, the wild ox, and monkeys of various kinds. The domestic animals are goats, horses, buffaloes (with which the Indo-Chinese carry on the difficult and unhealthy cultivation of the rice-fields), and pigs, which are kept in great numbers. There are numerous birds of many species, which—as in all tropical regions—are remarkable for the beauty of their plumage. Among the rest may be mentioned pea-fowl, pheasants, turtle-doves, the green pigeons of Pulo Condore, paroquets, hornbills, sultana fowls, and various species of wading birds and palmipeds. The rivers abound with life; and the fish, though of poor quality, form an important part of the food of the people. They are caught, along with frogs and snakes, even in the mud of the rice-fields. The crocodile is frequently met with, and adds another item to the native cuisine. This hot, damp country swarms with reptiles, of which some species are very dangerous. Among these are the huge cobra di capello (*Naja*), many species of adders, and the immense python, which is of much use in destroying during the night all kinds of rats, including the intolerable musk-rat.

The forests furnish several kinds of timber for building. In the plains and valleys are numerous fruit-trees,—the banana, the guava, the papaw, the medlar-tree, the orange, the citron, and, most abundant of all, the cabbage-palm and the cocoa-tree, and the cinnamon of which Tong-king furnishes a superior quality. The people of Anam are essentially agricultural. Besides rice, which is the chief production of the country, the cultivated lands furnish cotton, mulberry, sugar-cane, maize, betel-nut and vegetables, especially potatoes, earth-nuts, and pepper. Tea is cultivated also, es-

pecially in Tong-king, but the people of Anam do not know how to prepare it.

To the traveler who pays only a brief visit the kingdom of Anam appears ill provided with metals. If a mine be discovered the natives forbid access to it, and still more frequently, for fear of the authorities, are unwilling to give any information.

There is little industrial activity in Anam, but in Tong-king the manufacture of articles inlaid with mother-of-pearl is carried on.

The native of Anam is the worst built and the ugliest of all the Indo-Chinese who belong to the Mongolian race. He is scarcely of middle height, and is shorter and less vigorous than his neighbors. His complexion is tawny, darker than that of the Chinese, but clearer than that of the Cambodian; his skin is thick; his forehead low; his skull slightly depressed at the top, but well developed at the sides. His face is flat, with highly protruding cheek-bones, and is lozenge-shaped or eurygnathous to a degree that is nowhere exceeded. His nose is not only the flattest, but also the smallest among the Indo-Chinese; his mouth is large, and his lips thick; his teeth are blackened and his gums destroyed by the constant use of the betel-nut, the arecanut, and lime, a custom which perhaps originated in hygienic reasons. His neck is short, his shoulders slope greatly, his body is thick-set, large, all of one piece, as it were, and wanting in suppleness. His pelvis is large, with a considerable separation of the upper part of the femora, giving to his gait a curious swagger, which has, not without reason, been described as theatrical. This odd swagger by itself suffices to distinguish the Anamese from every other Indo-Chinese people without exception.

The Anamese are idle, incapable of deep emotion, and fond of ease. They show much outward respect for superiors and parents, but they take great delight in mocking and banter. They cherish great love of their native soil and native village, and cannot long remain far from home. On the whole they are mild, or rather apathetic, but the facility with which they learn is remarkable. Buddhism, mingled with coarse popular beliefs, is the dominant creed, but the learned hold the doctrine of Confucius, and in truth the people of Anam are but slightly religious. Nevertheless, like their neighbors, the Chinese and the Cambodians, they have a great respect for the dead, and their worship almost entirely consists of ceremonies in honor of their ancestors. Like the Chinese they dispose of the body by inhumation. Among the savage tribes of the interior there is scarcely any idea of a God, and the superstitious practices to which they are addicted can scarcely be considered as the expression of a definite religious idea. Christianity counts 400,000 adherents in Tong-king and 5,000 in Lower China.

The system of government in the empire of Anam is pure and absolute monarchy without any other constitution than powerful custom. The succession to the throne follows the order of primogeniture. Between the citizens there exists the most complete equality, since public offices are open to all, and there are no other social distinctions than those due to office or fortune.

The chief town and the ancient capital of Tong-king, Ha-noi, or Ke-cho (*i.e.*, the market), situated on one of the branches of the Song-Coi, though at present greatly fallen, still contains at least 50,000 inhabitants. It possesses a very large citadel, which serves as the residence of the viceroy and of the special envoy or royal commissioner, who is the first authority in Tong-king. This citadel, at present badly kept in repair and poorly equipped, was built in the course of last century according to plans furnished by European engineers.

Saigon, the capital of the French colony, is composed of three towns:—1st, an Asiatic town, inhabited by Anamese husbandmen, fishers, or servants, by mercantile Chinamen, by Malays, Tagals, and Hindus engaged in various occupations; 2d, the town of the colonists; and 3d, the Government town, inhabited by the Government employés, administrators, officers and physicians. The houses are mainly built of brick. Two gardens, one belonging to the governor and the other the botanical, overlook the town. The latter is very interesting, containing as it does a fine collection of trees and plants, both indigenous and exotic, as well as a very curious menagerie. At the port of Saigon 387 vessels entered and 398 left in 1874, which forms about half of the whole maritime trade in the colony.

It is difficult to state the exact number of the population of the empire of Anam, and authors vary greatly in their estimates. The data which appear most worthy of credit give a total sum of ten or twelve millions. As to the French colony the last official census of which the results have been published was made in 1873; it gives 1,487,200 inhabitants, of whom 49,500 were Chinese and 82,700 Cambodians. The Europeans numbered 1,114, exclusive of the Government officials and the garrison.

It is nearly a century since the first treaty of alliance was signed between France and the kingdom of Anam. By this treaty, dated the 28th November, 1787, the king of Cochin China ceded to France in full property the Peninsula of Tourane and the Isle of Pulo-Condore. The agreement was only partially executed, but it was sufficient to render the influence of France predominant in Cochin China; and Christianity made rapid progress in Tong-king. At the death of the king Gia-long, in 1820, the party hostile to strangers prevailed; and several attempts to protect the French missionaries and establish the French influence had failed, when in 1858, in consequence of the murder of M. Diaz,—who was put to death by order of the king, merely on account of the news that a French ship was cruising in sight of the coast,—a squadron was sent under the command of Admiral Rigault de Genouilly, who seized Tourane. Shortly after the admiral made explorations in the south, seeking a better situation for a settlement than Tourane, and passing up the River Don-naï, he took possession of Saigon, the true capital of Lower Cochin China. On the 5th of June, 1862, the court of Hué accepted a treaty, by which it abandoned three provinces to France, and bound itself to pay an indemnity of war. After various expeditions occasioned by revolts, France occupied in 1867 the three other provinces of Lower Cochin China, and after long negotiations a treaty was signed at Saigon, on the 15th March, 1874, definitively abandoning the six provinces to France.

Since that time France has had occasion to war with the natives, and at present her predominance is established by the maintenance of military occupation—both by land and sea.

COCHINEAL, a dye-stuff used for the production of scarlet, crimson, orange, and other tints, and for the preparation of lake and carmine. It consists of the females of *Coccus cacti*, an insect of the order *Hemiptera*, which feeds upon various species of the *Cactaceæ*, more especially the nopal plant, *Opuntia coccinellifera*, a native of Mexico and Peru. The dye was introduced into Europe from Mexico, where it had been in use long before the entrance of the Spaniards in the year 1518, and where it formed one of the staple tributes to the Crown for certain districts. In 1523 Cortes received instructions from the Spanish court to procure it in as large quantities as possible. It appears not to have been known in Italy so late as the year 1548, though the

art of dyeing then flourished there. The male of the cochineal insect is half the size of the female, and, unlike it, is devoid of nutritive apparatus; it has long white wings, and a body of a deep red color, terminated by two diverging setæ. The female is apterous, and has a dark-brown plano-convex body; it is found in the proportion of 150 to 200 to one of the male insect. The dead body of the mother insect serves as a protection for the eggs until they are hatched. Cochineal is collected thrice in the seven months of the season. The insects are carefully brushed from the branches of the cactus into bags, and are then killed by immersion in hot water, or by exposure to the sun, steam, or the heat of an oven—much of the variety of appearance in the commercial article being caused by the mode of treatment. The dried insect has the form of irregular, fluted, and concave grains, which weigh about one-tenth of a grain, as many as 70,000 insects being estimated to weigh one pound. Cochineal has a musty and bitterish taste. There are two principal varieties—silver cochineal, which has a greyish-red color, and the furrows of the body covered with a white bloom or fine down, and black cochineal, which is of a dark-reddish brown, and destitute of bloom. Granilla is an inferior kind, gathered from uncultivated plants. The best crop is the first of the season, which consists of the unimpregnated females; the later crops contain an admixture of young insects and skins, which contain proportionally little coloring matter.

Cochineal owes its tinctorial power to the presence of a substance termed *cochinealin*, or *carminic acid*, a compound of hydrogen, carbon, and oxygen, which may be prepared from the aqueous decoction of cochineal.

COCKATOO, a family of Scansorial Birds, distinguished from other Old World parrots by their greater size, by a crest of feathers on the head, which can be raised or depressed at will, and by their enormously developed bills. They inhabit the Indian Archipelago, New Guinea, and Australia, and are gregarious, frequenting woods and feeding on seeds, fruits, and the larvæ of insects.

COCKATRICE, a fabulous monster, the existence of which was firmly believed in throughout ancient and mediæval times,—descriptions and figures of it appearing in the natural history works of such writers as Pliny and Aldrovandus, those of the latter published so late as the beginning of the seventeenth century. Produced from a cock's egg hatched by a serpent, it was believed to possess the most deadly powers, plants withering at its touch, and men and animals dying poisoned by its look. It stood in awe, however, of the cock, the sound of whose crowing killed it, and consequently travelers were wont to take this bird with them in traveling over regions supposed to abound in cockatrices. The weasel alone among mammals was unaffected by the glance of its evil eye, and attacked it at all times successfully; for when wounded by the monster's teeth it found a ready remedy in rue—the only plant which the cockatrice could not wither. This myth reminds one of the real contests between the weasel-like mungoos of India and the deadly cobra, in which the latter is generally killed. The term "cockatrice" is employed on four occasions in the English translation of the Bible, in all of which it denotes nothing more than an exceedingly venomous reptile; it seems also to be synonymous with "Basilisk," the mythical king of serpents.

COCKBURN, MRS. ALISON (1712-1794), justly celebrated for having written one of the most exquisite of Scottish ballads, the *Flowers of the Forest*, was the daughter of a border laird, Robert Rutherford of Fairnalee, and was born in the heart of the Southern Highlands.

COCKBURN, SIR GEORGE (1772-1853), admiral, was of Scottish extraction, and was born in London. He entered the navy in his ninth year. After serving on the home station, and in the East Indies and Mediterranean, he assisted, as captain of the "Minerve," at the blockade of Leghorn in 1796, and a year afterward he fought in the battle of Cape St. Vincent. He was made rear-admiral in 1812, and in 1813-14 he took a prominent part in the American war, especially at the battle of Bladensburg and the capture of Washington. Early in 1815 he received the Order of the Bath, and in the autumn of the same year he carried out, in the "Northumberland," the sentence of deportation to St. Helena which had been passed upon Bonaparte. In 1818 he received the Grand Cross of his order, and was made a Lord of the Admiralty; and the same year he was returned to parliament for Portsmouth. He was promoted to the rank of vice-admiral in 1819, and to that of admiral in 1837; he became senior naval lord in 1841, and held office in that capacity till 1846. From 1827 he was a privy councillor. In 1851 he was made Admiral of the Fleet, and in 1852, a year before his death, his brother's baronetcy fell to him by inheritance.

COCKBURN, HENRY DUNDAS, known as Lord Cockburn, was born in Edinburgh, October 26, 1779. The extent of his literary ability only became known after he had passed his seventieth year, on the publication of his biography of Lord Jeffrey in 1852, and from the *Memorials of his Time*, which appeared posthumously in 1856. He died on the 26th of April, 1854, at his mansion of Bonaly, near Edinburgh.

COCKCHAFER (*Melolontha vulgaris*), a beetle of the family *Lamellicornes* and section *Phyllophagi* (leaf-eaters), common in most parts of Europe, famous for the ravages which it commits, both in the grub state and in that of the perfect insect—the winged beetle feeding on the leaves of fruit trees, and of many forest trees, the grub devouring the roots of plants, particularly of pasture grasses and corn.

COCKER, EDWARD, the reputed author of the famous *Arithmetick*, the popularity of which has added a phrase to the list of English proverbialisms, was born about 1632, and died between 1671 and 1675.

COCKERELL, CHARLES ROBERT, architect, was born in London in 1788. After a severe preliminary training in his profession, he visited and studied the great architectural remains of Greece, Italy and Asia Minor. At Ægina, Phigalia, and other places of interest, he conducted excavations on a large scale, enriching the British Museum with many fine fragments, and adding several valuable monographs to the literature of archæology, the best of which is said to be that on the mausoleum of Halicarnassus. Elected in 1829 an associate of the Royal Academy, he became a member in 1836, and in 1839 he was appointed professor of architecture. He died in 1863.

COCKERMOUTH, a parliamentary borough and market-town of England, in the county of Cumberland, twenty-five miles by rail from Carlisle, at the confluence of the Derwent and the Cocker, both of which are crossed by bridges. Population, 7,000.

COCKLE (*Cardium*), a genus of Acephalous Mollusks belonging to the family *Cardiada*, and comprising about 200 species, nearly a third of which are said to occur in the Indian Ocean, while only a few, but these exceedingly abundant in individuals, and widely distributed, are found in northern and temperate latitudes. The shells of cockles are highly convex, and almost invariably show a ridge-and-furrow sculpture, the ridges or ribs being often spiny, and the valves locking closely together. The animal inhabiting the shell is provided with a large, fleshy and highly elastic foot, by means

of which it can rapidly bury itself in the soft, muddy sand which it frequents, reappearing above the surface with equal facility. Many of the species are of considerable value as articles of food, especially the Common Cockle (*Cardium edule*), gregarious everywhere in the sandy bays and estuaries around the British coast, from low water mark to a few fathoms deep, and extending from Iceland to the Canaries, and as far east as the Caspian and Aral Seas.

COCKNEY. The oldest form of this word is *coke-ney* or *cokemay* (trisyllabic) and is used of an effeminate person. Skeat thinks it may be Celtic and connected with *coax*. Now it is used of Londoners especially, and implies the defects of town-bred persons, who know only the sights and institutions of the town, and conceitedly despise what they are not familiar with.

COCK OF THE PLAINS, properly **SAGE GROUSE** (*Tetrao* or *Centrocercus urophasianus*), the largest of the North American species of grouse. It is about one-third smaller than the European capercaillie, or cock of the woods.

COCKPIT, in a ship of war, is a room near the after-hatchway, under the lower gun-deck; it adjoins the surgeon's cabin and the surgery. It contains the medicine chests, and is the place where wounded men are attended to during an action.

COCKROACH (*Blattidæ*), a family of Orthopterous Insects, distinguished by their flattened bodies, long, thread-like antennæ, and shining leathery integuments. Cockroaches are nocturnal creatures, secreting themselves in chinks and crevices about houses, issuing from their retreats when the lights are extinguished, and moving about with extraordinary rapidity in search of food. They are voracious and omnivorous, devouring, or at least damaging, whatever comes in their way, for all the species emit a disagreeable odor, which they communicate to whatever article of food or clothing they may touch. The best mode of destroying cockroaches is, when the fire and lights are extinguished at night, to lay some molasses on a piece of wood afloat on a broad basin of water. This proves a temptation to the vermin too great to be resisted. The chinks and holes from which they issue should also be filled up with unslaked lime, and some may be scattered on the ground.

COCKSCOMB (*Celosia cristata*), an annual plant of the natural order *Amarantaceæ*, a native of the East Indies.

COCKS-FOOT GRASS (*Dactylis*), a genus of grasses having the panicle of flowers much on one side of the stem, the secondary branches so short that the spikelets are much crowded into clusters; the glumes unequal, the larger one keeled, each spikelet containing two to seven florets, each of which has two lanceolate, scarcely-awned paleæ.

COCKSWAIN, or **COXWAIN** (pronounced *Cosn*), on board a ship, is the steersman of a boat and commander of the boat's crew. He is expected to have his men always ready for service at short notice, and is furnished with a whistle to summon them.

COCLES, **HORATIUS**, a Roman hero, who, with Spurius Lartius and Titus Herminius as sole companions, defended the Sublician bridge against Lars Porsena and the whole army of the Etruscans. While the three heroes kept back the enemy the Romans cut down the bridge behind. When it was almost ready to fall his comrades retreated, but Horatius waited till the work was complete, and Rome was saved. Then, despite the arrows of the enemy, he swam in safety to the opposite shore. A statue was erected in his honor, and he received as much land as he could plow around in a single day. According to another story, Horatius was alone in his heroism, and gave his life for his

country. The former version is adopted by Lord Macaulay in his *Lays of Ancient Rome*.

COCOA, or more properly **CACAO**, is a valuable dietary substance yielded by the seeds of several small trees belonging to the genus *Theobroma*, of the natural order *Sterculiaceæ*. The whole genus, which comprises nine or ten species, belongs to the tropical parts of the American continent, and although the cocoa of commerce is probably the produce of more than one species, by far the greatest and most valuable portion is obtained from the *Theobroma Cacao* of Linnæus.

The common cocoa tree is of low stature, seldom exceeding sixteen or eighteen feet in height, but it is taller in its native forests than it is in cultivated plantations. The leaves are large, smooth and glossy, elliptic-oblong and acuminate in form, growing principally at the ends of branches, but sometimes springing directly from the main trunk. The flowers are small, and occur in numerous clusters on the main branches and the trunk, a very marked peculiarity which gives the matured fruit the appearance of being artificially attached to the tree. Generally only a single fruit is matured from each cluster of flowers. When ripe the fruit or "pod" is elliptical-ovoid in form, from seven to ten inches in length, and from three to four and one-half inches in diameter. It has a hard, thick, leathery rind of a rich purplish yellow color, externally rough and marked with ten very distinct longitudinal ribs or elevations. The interior of the fruit has five cells, in each of which is a row of from five to ten seeds, embedded in a soft, delicately pink acid pulp. Each fruit thus contains from twenty to forty or more seeds, which constitute the raw cocoa, or "cocoa beans," of commerce. The tree appears to have been originally a native of Mexico; but it can be cultivated in suitable situations within the twenty-fifth parallels of latitude. It, however, flourishes best within the fifteenth parallels, at elevations ranging from near the sea-level, up to about 2,000 feet in height. It is now cultivated in Mexico, Honduras, Guatemala, Nicaragua, Brazil, Peru, Equador, New Granada, Venezuela, Guiana, and most of the West Indian Islands. Its cultivation has also been attempted in other tropical regions of the globe, but the industry has hitherto not been developed on any considerable scale away from the American Continent and the West Indian Islands.

Raw cocoas are distinguished in commerce by the name of the localities of their growth, and it is found that the produce of particular regions maintains pretty constantly a distinctive character and appearance.

The cocoa tree was cultivated, and its produce held in the highest esteem, in Mexico and Peru previous to the discovery of the American Continent by Columbus.

A knowledge of this valuable article of food was first brought to Europe by Columbus, but some time elapsed ere its virtues were appreciated in the Old World. Spain was the first nation in which its use became common; and to this day cocoa is much more extensively consumed among the Spaniards than by any other European community.

The constituent upon which the peculiar value of cocoa depends is the theobromine, an alkaloid substance, which till recently was supposed to be distinct from, though closely allied to, the thiene of tea and coffee. It is now, however, known that the alkaloid in these and in two or three other substances similarly used is identical, and their physiological value is consequently the same. The fat or cocoa butter is a firm, solid, white substance at ordinary temperature, having an agreeable taste and odor, and very remarkable for its freedom from any tendency to become rancid. It consists essentially of stearine with a little olein, and is used in surgical prac-

tice, and in France as a material for soap and pomade manufacture. The starch grains present in raw cocoa are small in size, and of a character so peculiar that there is no difficulty in distinguishing them under the microscope from any other starch granules. As an article of food cocoa differs essentially from both tea and coffee. While only an infusion of these substances is used, leaving a large proportion of their total weight unconsumed, the entire substance of the cocoa seeds is prepared as an emulsion for drinking, and the whole is thus utilized within the system. While the contents of a cup of tea or coffee can thus only be regarded as stimulant in its effect, and almost entirely destitute of essential nutritive properties, a cup of prepared cocoa is really a most nourishing article of diet, as, in addition to the value of the theobromine it contains, it introduces into the system no inconsiderable proportion of valuable nitrogenous and oleaginous elements.

The manufacturing processes through which raw cocoa passes have for their object the development of the aroma peculiar to the substance, and its preparation in a soluble, palatable, and digestible form. The first operation consists in roasting the seeds, whereby the empyreumatic aromatic substance is formed, and the starch particles are changed into dextrin. The roasting is accomplished in large revolving cylinders, after the completion of which the roasted seeds are taken to the crushing and winnowing machine. Here the seeds are reduced to the form of nibs, which are separated from the shells or husks by the action of a powerful fan blast. The nibs are next subjected to a process of winnowing in small quantities in hand sieves, by which the hard cocoa "germs" are sifted out, and mouldy or discolored fragments are at the same time removed by hand. Nibs so prepared constitute the simplest and purest preparation in which manufactured cocoa is sold; but they require prolonged boiling to effect their complete disintegration. The nibs when ground to a fine meal can be cooked with much greater facility. Another form in which the pure seeds are prepared is in flaked cocoa, which consists of the nibs ground up into a rather coarse uniform paste. The grinding is effected in cylinder machines, having an outer fixed casing within which a drum revolves. The nibs are fed in by a hopper on the upper part of the apparatus, and are carried round its circumference by the revolution of the drum, and delivered as a thin uniform pasty mass, the heat developed by the friction within the cylinder being sufficient to liquefy the oil, which again sets on cooling of the paste.

COCOANUT PALM (*Cocos nucifera*), sometimes, and perhaps more correctly, called the coconut palm, is a very beautiful and lofty palm-tree, growing to a height of from 60 to 100 feet, with a cylindrical stem which attains a thickness of two feet. The tree terminates in a crown of graceful waving pinnate leaves. The leaf, which may attain to twenty feet in length, consists of a strong mid-rib, whence numerous long acute leaflets spring, giving the whole the appearance of a gigantic feather. The flowers are arranged in branching spikes five or six feet long, enclosed in a tough spathe, and the fruits mature in bunches of from ten to twenty. The fruits when mature are oblong, and triangular in cross section, measuring from twelve to eighteen inches in length and six to eight inches in diameter. The fruit consists of a thick external husk or rind of a fibrous structure, within which is the ordinary cocoanut of commerce. The nut has a very hard, woody shell, enclosing the nucleus or kernel within which again is a milky liquid called cocoanut milk. The palm is so widely disseminated throughout tropical countries that it is impossible to distinguish its original habitat. It flourishes with equal vigor on the coast of

the East Indies, throughout the tropical islands of the Pacific, and in the West Indies and tropical America.

The uses to which the various parts of the cocoanut palm are applied are almost endless. The nuts supply no inconsiderable proportion of the food of the natives, and the milky juice inclosed within them forms a pleasant and refreshing drink. The juice drawn from the unexpanded flower spathes forms "toddy," which may be boiled down to sugar, or it is allowed to ferment and is distilled, when it yields a spirit which, in common with a like product from other sources, is known as "arrack." The trunk yields a timber (known in European commerce as porcupine wood) which is used for building, furniture, fire-wood, etc.; the leaves are plaited into cajan fans and baskets, and used for thatching the roofs of houses; the shell of the nut is employed as a water-vessel; and the external husk or rind yields the coir fiber, from which is fabricated ropes, cordage, brushes, etc. Cocoanut oil is obtained by pressure or boiling from the kernels, which are first broken up into small pieces and dried in the sun, when they are known as copperah or copra. It is estimated that 1,000 full-sized nuts will yield upward of 500 pounds of copra, from which twenty-five gallons of oil should be obtained. The oil is a white solid substance at ordinary temperatures, with a peculiar, rather disagreeable odor, from the volatile fatty acid it contains, and a mild taste. Under pressure it separates into a liquid and a solid portion, the latter, cocoa-stearine, being extensively used in the manufacture of candles. Cocoanut oil is also used in the manufacture of marine soap, which forms a lather with sea water. Coir is also an important article of commerce, being in large demand for the manufacture of coarse brushes, doormats, and woven coir matting for lobbies and passages. Great quantities of the fresh nuts are exported from the West Indies to the United States and Europe where they are used for food.

COCOON, a silken envelope which the larvæ of many insects spin for themselves immediately before their transformation into the pupa state, and which serves for the protection of the inactive and helpless pupa. Many insects mix foreign materials of various kinds with their silken cocoons; some caterpillars, as those popularly called woolly bears, working into them the hairs with which their own bodies were previously covered; and others fastening together the sides of a leaf or of several adjacent leaves. The cocoon of the common silk-worm exhibits externally a loose gauze-like covering, within which is a close and compact oval ball; yet all is of one continuous thread, which may be unwound from it 1,000 feet long.

COCYTUS, a tributary of the Acheron, a river of Thesprotia, which flows into the Ionian Sea. Its modern name is the Vuvo. The name is also applied, in classical mythology, to a tributary of the Acheron, a river in Hades.

COD (*Morrhua vulgaris*), a well-known species of *Gadidæ*, a family of Anacanthine Fishes, possessing, in common with the other members of the genus, three dorsal and two anal fins, and a single barbel at the chin. It is a widely-distributed species, being found throughout the northern and temperate seas of Europe, Asia, and America, extending as far south as Gibraltar, but not entering the Mediterranean, and inhabits waters from twenty-five to fifty fathoms deep, where it always feeds close to the bottom. It is exceedingly voracious, feeding on the smaller denizens of the ocean—fish, crustaceans, worms, and mollusks, and greedily taking almost any bait the fisherman chooses to employ. The cod spawns in February, and is exceedingly prolific, the roe of a single female having been known to contain upward of 8,000,000 of ova, and to form more than half the weight

of the entire fish. Only a small proportion of these get fertilized, and still fewer ever emerge from the egg. The number of cod is still further reduced by the trade carried on in roe, large quantities of which are used in France as ground-bait in the sardine fishery, while it also forms an article of human food. The young are about an inch in length by the end of spring, but are not fit for the market till the second year, and it has been stated that they do not reach maturity, as shown by the power of reproduction, till the end of their third year. They usually measure about three feet in length, and weigh from twelve to twenty pounds, but specimens have been taken from fifty to seventy pounds in weight. As an article of food the cod-fish is in greatest perfection during the three months preceding Christmas. It is caught on all parts of the British and Irish coasts, but the Dogger Bank, and Rockall, off the Outer Hebrides, have been specially noted for their cod-fisheries.

COD-LIVER OIL is an oil of great medicinal value, obtained from the liver of the common cod (*Morrhua vulgaris*), and also to some extent from the ling (*Lota molva*), the whiting (*Merlangus vulgaris*), the pollack (*Merlangus pollachius*), as well as other members of the *Gadidae*. The oil obtained from the livers differs in quality, from a very pure pale-colored liquid to a dark, evil-smelling product, according to the care exercised and the process adopted for its extraction. The very dark colored rank oils are used only for burning and lubricating, and in commerce are known as cod oil. The purer qualities, up to an oil having a brown sherry color, are alone used medicinally as cod-liver oil. Various methods of extracting the oil are adopted in the different countries where its preparation is prosecuted. Generally it may be stated that the medicinal oil is obtained from selected livers, which are carefully examined, cleaned, split up, and thrown together into a large vessel. From these a very small proportion of a pure and almost colorless oil exudes spontaneously, and exposure to the heat of the sun causes a further exudation. By the application of heat in a steam or water bath to a temperature not exceeding 180° Fahr., a proportion of still pale or straw-colored oil is obtained. The oil which results from the application of a higher heat and pressure, and that obtained from unhealthy and from putrid livers, are only used industrially as cod oil. The extraction of the oil is most extensively prosecuted in Newfoundland and in Norway; but a considerable quantity is also prepared in the Shetland Islands and along the east coast of Scotland.

CODE. A code is a complete and systematic body of law, or a complete and exclusive statement of some portion of the law. Such, at least, is the sense in which the word is used when it is proposed to recast the laws of a country like England in the form of a code. Many collections of laws, however, which are commonly known as codes, would not correspond to this definition. The Code of Justinian, the most celebrated of all, is not in itself a complete and exclusive system of law. It is a collection of imperial constitutions, just as the Pandects are a collection of the opinions of jurisconsults. The Code and the Pandects together being, as Austin says, "digests of Roman law in force at the time of their conception," would, if properly arranged, constitute a code. Codification in this sense is merely a question of the *form* of the laws, and has nothing to do with their goodness or badness from an ethical or political point of view. Sometimes codification only means the changing of unwritten into written law; in the stricter sense it means the changing of unwritten or badly written law into law well written.

Roman Codes.—Under the empire the *constitutiones* or *edicta* of the chief of the state had the force of law.

The practice of collecting the constitutions of the emperors seems to have been begun by private lawyers—such at all events is the character of the oldest collection, known as the *Codex Gregorianus et Hermogenianus*, which formed the model for the imperial codes of Theodosius and Justinian. The Theodosian code was the work of a commission of sixteen, to whom, in 435 A.D., the emperor intrusted the task of collecting the edicts and constitutions from the time of Constantine. It was finished in 438, and promulgated as the law of the empire.

In 528 the Emperor Justinian ordered a new collection to be made, and appointed a commission of ten for that purpose, including the celebrated Tribonian. The commissioners were to compile one code out of the "three codes—Gregorian, Hermogenian, and Theodosian," and the constitutions which had been ordained since the last of these was confirmed. The commissioners had full power to make such changes as might be necessary in the language of the constitutions, and to omit all that was unnecessary, obsolete, or inconsistent. The collection was to include rescripts as well as constitutions, and was to supersede (as the Theodosian code also did) the sources from which it had been compiled. The code was finished within fourteen months, but a revised edition was rendered necessary by some new decisions and constitutions of the emperor. In 534 the new code was published and the first edition superseded. The second is the code we now possess; the first has been lost. The Code is divided into twelve books, and each book into titles, under which the constitutions are arranged in chronological order, and with the names of the emperors by whom they were enacted. There is a general correspondence between the order of the Digest and the Code of Justinian, but neither the Digest nor any of the codes pretended to scientific classification. The arrangement was dictated by the order of writers on the Prætorian Edict.

The same causes which made these collections necessary in the time of Justinian have led to similar undertakings among modern peoples. The actual condition of laws until the period when they are consciously remodeled is one of confusion, contradiction, repetition, and disorder; and to these evils the progress of society adds the burden of perpetually increasing legislation. Some attempt must be made to simplify the task of learning the laws by improving their expression and arrangement.

The most celebrated modern code is the *Code Napoléon*. The necessity of a code in France was mainly caused by the immense number of separate systems of jurisprudence existing in that country before 1789, justifying Voltaire's sarcasm that a traveler in France had to change laws about as often as he changed horses. The conception of a general code for the whole country had occurred to jurists and statesmen before Napoleon, and the Convention, in fact, discussed two projects presented by Cambacérès, one of which had been found too complicated and the other too condensed. Napoleon, on becoming consul, appointed a commission headed by M. Tronchet to review previous efforts and present a new project. In four months the project was presented to the Government, submitted to the judges, and discussed by the Council of State—Napoleon himself taking part in the deliberations. At first published under the title of *Code Civil des Français*; it was afterward entitled the *Code Napoléon*,—the emperor wishing to attach his name to a work which he regarded as the greatest glory of his reign.

The Prussian code (*Code Frédéric*) was published by Frederick the Great in 1751. It was intended to take the place of "Roman, common Saxon, and other foreign subsidiary laws and statutes," the provincial laws re-

maining in force as before. One of the objects of the king was to destroy the power of the advocates, whom he hoped to render useless. The Italian civil code, published in 1866, on the establishment of Italian unity, is founded mainly on the French code. The object of all these codes was to frame a common system to take the place of several systems of law, rather than to restate in an exact and exhaustive form the whole laws of a nation, which is the problem of English codification. The French and Prussian codes, although they have been of great service in simplifying the law, have failed to prevent outside themselves that accumulation of judiciary and statute law which in England has been the chief motive for codification. A more exact parallel to the English problem may be found in the *Code of the State of New York*. The revised constitution of the State, as adopted in 1846, "ordered the appointment of two commissions, one to reduce into a written and a systematic code the whole body of the law of the State, and the other to revise, reform, simplify, and abridge the rules and practice, pleadings, &c., of the courts of record." By an act of 1837, the State Legislature declared that the body of substantive law should be contained in three codes — the Political, the Civil, and the Penal. The works of both commissions, completed in 1865, now fill six volumes, containing the Code of Civil Procedure (including the law of evidence), the Book of Forms, the Code of Criminal Procedure, the Political Code, the Penal Code, and the Civil Code. In the introduction to the Civil Code it is claimed that in many departments of the law the codes have "provided for every possible case, so that when a new case arises it is better that it should be provided for by new legislation." The New York code is defective in the important points of definition and arrangement. Much interest has attached to the Penal Code drawn up by Edward Livingston for the State of Louisiana, about fifty years ago. The system consists of a Code of Crime and Punishments, a Code of Procedure, a Code of Evidence, a Code of Reform and Prison Discipline, and a Book of Definitions. "Though the State for which the codes were prepared," says Chief Justice Chase, "neglected to avail itself of the labors assigned and solicited by itself, they have proved, together with their introductions, a treasure of suggestions to which many states are indebted for useful legislation." A complete edition of Livingston's works has recently been published by the National Prison Association of the United States.

CODEX (pl. **CODICES**, for derivation see preceding article), the name applied to ancient manuscript copies of the Scriptures.

CODICIL, a supplement to a will, whereby anything omitted is added, or any change demanded by the altered circumstances of the testator or the beneficiaries is effected.

CODIFICATION, the act of forming a code or systematic collection of laws. Though a code, in the wider sense, comprehends frequently the whole legislation of a country, there is a narrower sense in which the term is applied to a particular branch of legislation, such as commercial law, criminal law, marine, etc.

CODOGNO, a town of Italy, in the province of Milan, and district of Lodi. Population, 11,000.

CODRINGTON, SIR EDWARD (1770-1851), admiral, belonged to an old Gloucestershire family. He entered the navy in 1783. In 1813 he sailed for North America, where he was made rear-admiral and captain of the fleet. In 1826 he was appointed to the command-in-chief of the Mediterranean squadron of eleven sail, sent to restrain Ibrahim Pasha from operating against the Greeks, and sailed in the "Asia" for the Morea.

Here he was joined by the French and Russian contingents, of five and eight sail respectively, under Admirals de Rigny and Heiden, who were put under his orders. A literal interpretation of instructions led to the battle of Navarino, in which the Turkish and Egyptian fleets, of thirty-six sail, with a cloud of gun-boats, schooners, and craft of all sorts, were almost entirely destroyed. For his share in this action Codrington received a Grand Cross of the Bath; but the steps which led to it occasioned considerable dissatisfaction in England, and he was recalled in 1828. He was returned to Parliament for Devenport in 1832 in the Liberal interest, and was reelected in 1835 and 1837. In the latter year he was gazetted admiral.

CODRUS, the hero of an early Athenian legend, was the last king of Athens, and belongs to the eleventh century B.C. According to the story, it was prophesied that the Dorians would conquer Attica if they spared the life of the Attic king. Devoting himself to his country, Codrus, in disguise, provoked a quarrel with some Dorian soldiers. He fell, and the Dorians retreated homeward. To so noble a patriot no one was thought worthy to succeed; and the title of king was thenceforth abolished, that of archon taking its place.

COEFFICIENT (Lat. together-making) is the name given in Algebra to the known or constant factor of an unknown or variable quantity. Thus, in the expression $4x$ (4 times x), bz (b times z), 4 and b are coefficients of x and z , b being supposed known as well as 4, and x and z unknown or variable. Strictly speaking, in a product, such as 3×5 , $4 \times x$, or $b \times z (=bz)$, either of the two factors is a coefficient, since they "together make" the product; but in practice, the meaning is restricted as above explained.

COEHORN, MENNO, BARON VAN (1641-1704), "the Dutch Vauban," was of Swedish extraction, and was born at Leeuwarden, in Friesland. He served in the campaign of 1667 against Turenne, and later distinguished himself at the sieges of Maestricht (1673) and Graave (1674), and at the battles of Senef (1674), Cassel (1677), and St. Dennis (1678). The genius of Vauban had made a fine art of the attack and defense of fortified places, and Coehorn, who had already invented the mortar, had imposed on himself the task of meeting and beating that fine engineer on his own ground. From 1688 to 1691 Coehorn's genius and activity answered the innumerable demands that were made upon them. In 1692 Vauban himself laid siege to Namur, and Coehorn waited within the city. The town was reduced in a week; but the castle in its quintuple enciente, manned by Coehorn and his own regiment, seemed impregnable. The Dutch chief, however, was severely wounded, and the castle capitulated, with the honors of war, eight days after the city. The campaign of 1695 brought his revenge. He reduced the city, on which Vauban in the meanwhile had expended all the resources of his art, and the castle fell a month afterward. In 1701, however, the war of the Spanish succession broke out, and Coehorn went at once to the front. By the siege and capture in succession of Venloo, Stevensworth, Ruremond, and Liège, he rendered the allies masters in a single campaign of the line of the Meuse from Holland to Huy. He followed up those exploits by the investment and reduction of Bonn (1703), and passing thence into Flanders, with Sparr, he forced the French lines in the Waes, between the sea and the left bank of the Scheldt. Returning to the center of operations on the Meuse, he besieged and took Huy in the same year, under the very eyes of Villeroi. Thence he went to The Hague to confer with Marlborough concerning the next campaign, and was there cut off by apoplexy, March 17, 1704.

CŒLENTERA, or, less correctly, **CŒLENTERATA**, the name of a group of animals including the classes Hydrozoa, Anthozoa, and Ctenophora. (The two last-mentioned classes are by Huxley and a few others placed in a single class, Actinozoa). The reader will consult the articles on **ACTINOZOA**, **COSALS**, and **HYDROZOA**, with that on the **ANIMAL KINGDOM**, for the more important details touching the structure, classification, and affinities of cœlenterate animals.

According to Van Beneden, R. Leuckart, and some others, the sponges also have their place among Cœlentera,—a view which has of late years received much support in consequence of the profounder study of the calcareous sponges begun by Miklucho-Maclay and diligently followed up by Haeckel. There is much to be said in favor of regarding the sponges as an aberrant (and, at the same time, degraded) Cœlenterate class, but, for the present, it will be well to treat them as a group apart.

It is usual to consider the Cœlentera (with or without the sponges) as a primary group, or sub-kingdom, of animals; and a high authority has stated that the institution of this group has been the greatest improvement in the arrangement of the animal kingdom effected since the time of Cuvier. But, should we so interpret the results of certain recent embryological inquiries as to throw the Cœlentera into one great division along with all the higher invertebrates, such a mode of treatment would reduce Cœlentera to the rank of a province.

COELLO, **ALONSO SANCHEZ** (1515–1590), painter, according to some authorities a native of Portugal, was born, according to others, at Benifacio, near the city of Valencia. He was a follower of Titian, and, like him, excelled in portraits and single figures, elaborating the textures of his armors, draperies, and such accessories in a manner so masterly as strongly to influence Velasquez in his treatment of like objects. Many of his pictures were destroyed in the fires that consumed the Madrid and Prado palaces, but many good examples are yet extant, among which may be noted the portraits of the Infantes Carlos and Isabella, now in the Madrid Gallery, and the St. Sebastian painted in the church of San Gerónimo, also in Madrid. Coello left a daughter, Isabella Sanchez, who studied under him, and painted excellent portraits.

COEN, **JAN PETERSZON** (1587–1630), the founder of Batavia, was born at Hoorn, and was sent when a youth to Rome to be instructed in the principles of commerce. In 1607 he went to India, but returned some four years afterward, and in 1612 was sent out a second time, with the command of two ships. He acquitted himself so well of his commission, and made himself so remarkable by the brilliance and success of his practice of commerce, that in 1613 he was named director-general of the Indian trade. In 1617 he was made president at Bantam; and in 1619, having taken and destroyed Jacatra, he founded on its ruins the city of Batavia, which he forthwith proclaimed the capital of the Dutch East Indies. In 1622 Coen revisited Europe, but five years afterward he returned to Java. In 1629 the Javanese emperor attempted to dislodge the interlopers, and laid siege to Batavia; but Coen beat off all his attacks. He died the following year.

CŒNOBITES (from common and life), a religious order living in a convent, or in community,—in opposition to the anchorites or hermits who live in solitude. See **MONASTICISM**.

CŒUR, **JACQUES**, founder of the trade between France and the Levant, was born at Bourges, near the close of the fourteenth century. His father, Pierre Cœur, was one of the richest peltry merchants of the flourishing city of Bourges; and we hear first of Jacques

in 1418, when he married Macée de Léodepart, daughter of an influential citizen, afterwards provost, a quondam valet of John of Berry. About 1429 he formed a commercial partnership with two brothers named Godard; and in 1432 he is heard of at Damascus, buying and bartering, and transporting Levantine ware (gall-nuts, wools and silks, goats' hair, brocades and carpets) to the interior of France by way of Narbonne. In the same year he established himself at Montpellier, and there commenced those gigantic operations which have made him illustrious among financiers of all time. Details are absolutely wanting; but it is certain that in a few years he placed his country in a position to contend not unsuccessfully with the great trading republics of Italy and Catalonia, and acquired such reputation as to be able, mere trader as he was, to render material assistance to the Order of Rhodes and to Venice herself.

In 1436 Cœur was summoned to Paris by Charles VII., and made master of the mint that had been established in that city. The post was of vast importance, and the duties were onerous in proportion. The country was deluged with the base moneys of three reigns, charged with superscriptions both French and English; and Charles had determined on a sweeping reform. In this design he was ably seconded by the great merchant, who, in fact, inspired or prepared all the ordinances concerning the coinage of France issued between 1435 and 1451. In 1438 he was made steward of the royal expenditure; and in 1440 he and his family were ennobled by letters patent. In 1444 he was sent as one of the royal commissioners to preside over the new parliament of Languedoc—a dignity he bore through successive years till the day of his disgrace. In 1445 his agents in the East negotiated a treaty between the Sultan of Egypt and the Knights of Rhodes; and in 1447, at his instance, Jean de Village, his nephew by marriage, was charged with a mission to Egypt. The results of this communication were most important; concessions were obtained which greatly improved the position of the French consuls in the Levant, and that influence in the East was thereby founded which, though often interrupted, was for several centuries a chief commercial glory of France. In the same year Cœur assisted in an embassy to the counts of Savoy; and in 1448 he represented the French king at the court of Nicholas V., who treated him with utmost distinction, lodged him in the Papal palace, and gave him a special license to traffic with the Infidels. From about this time he made large advances to Charles for carrying on his wars; and in 1449, after fighting at the king's side through the campaign, he entered Rouen in his train.

At this moment the great trader's glory was at its height. He had represented France in three embassies, and had supplied the sinews of that war which had ousted the English from Normandy. He was invested with various offices of dignity, and possessed the most colossal fortune that had ever been amassed by a private Frenchman. The sea was covered with his ships; he had 300 factors in his employ, and houses of business in all chief cities of France. He had built hotels and chapels and had founded colleges in Paris, at Montpellier, at Bourges. Dealing in all things—money and arms, peltry and jewels, brocades and woollens—broking, banking, farming, he had absorbed the trade of the country, and merchants complained they could make no gains on account of "that Jacquet." Soon, nowever, he was a broken man and a fugitive. Charles was surrounded with the enemies of the merchant; he was "unstable as water," and he was always needy. Jacques Cœur had to go the way of others who had been the friends and favorites of the king.

In February, 1449, Agnes Sorel, the mistress of Charles, died of puerperal fever. It was maintained, however, that the Dauphin Louis had procured her death, and some considerable time after her death, Jacques Cœur, who had been named one of her executors, was accused formally of having poisoned her. There was not even a pretext for such a charge, but for these and other alleged crimes, the king, on the 31st July, 1451, gave orders for the arrest of Jacques Cœur, and for the seizure of his goods, reserving to himself a large sum for the war in Guienne. Commissioners extraordinary, the merchant's declared enemies, were chosen to conduct the trial, and an inquiry commenced, the judges in which were either the prisoner's debtors or the holders of his forfeited estates. He was accused of having paid French gold and ingots to the Infidels, of coining light money, of kidnapping oarsmen for his galleys, of sending back a Christian slave who had taken sanctuary on board one of his ships, and of committing frauds and exactions in Languedoc to the king's prejudice. He defended himself with all the energy of his nature. His innocence was manifest, but a conviction was necessary, and in spite of strenuous efforts on the part of his friends, after twenty-two months of confinement in five prisons, he was condemned to do public penance for his fault, to pay the king a sum equal to about £1,000,000 of modern money, and to remain a prisoner till full satisfaction had been obtained; his sentence also embraced confiscation of all his property, and exile during royal pleasure. On June 5, 1453, the sentence took effect; at Poitou the shameful form of making honorable amends was gone through, and for nearly three years nothing is known of him. It is probable that he remained in prison; it is certain that his vast possessions were distributed among the intimates of Charles.

In 1455 Jacques Cœur, wherever confined, contrived to escape into Provence. He was pursued, but a party headed by Jean de Village and two of his old factors, carried him off to Tarascon, whence, by way of Marseilles, Nice, and Pisa, he managed to reach Rome. He was honorably and joyfully received by Nicholas V., who was fitting out an expedition against the Turks. On the death of Nicholas, Calixtus III. continued his work, and named his guest captain of a fleet of sixteen galleys sent to the relief of Rhodes and the Archipelago. He set out on this expedition, but was taken ill at Chios, and died there, November 25, 1456. He was buried on the island, but his place of sepulcher is not known. The stain was not removed from his honor till the reign of Louis XI., when, at the instance of Geoffroy Cœur, the great merchant's name was finally rehabilitated.

COFFEE (French, *Café*; German, *Kaffee*). This important and valuable article of food is the produce chiefly of *Coffea arabica*, a Rubiaceous plant indigenous to Abyssinia, which, however, as cultivated originally, spread outward from the southern parts of Arabia. The name is probably derived from the Arabic K'hāwah, although by some it has been traced to Caffa, a province in Abyssinia, in which the tree grows wild. In the genus *Coffea*, to which the common coffee tree belongs, from fifty to sixty species were formerly enumerated, scattered throughout the tropical parts of both hemispheres; but by referring the American plants to a different genus, the list is now restricted to about twenty-two species. Of these seven belong geographically to Asia; and of the fifteen African species eleven are found on the west coast, two in Central and East Africa, and two are natives of Mauritius. Besides being found wild in Abyssinia, the common coffee plant appears to be widely disseminated in Africa, having been seen on the shores of the Victoria Nyanza and in Angola on the west coast. Within the last year or two

considerable attention has been devoted to a West African species, *C. liberica*, belonging to the Liberian coast, with a view to its extensive introduction and cultivation. Its produce, obtained from native plants, have been several years in the English market.

The common coffee shrub or tree is an evergreen plant, which under natural conditions grows to a height of from eighteen to twenty feet, with oblong-ovate, acuminate, smooth, and shining leaves, measuring about six inches in length by two and a half wide. Its flowers, which are produced in dense clusters in the axils of the leaves, have a five-toothed calyx, a tubular five-parted corolla, five stamens, and a single bifid style. The flowers are pure white in color, with a rich fragrant odor, and the plants in blossom have a lovely and attractive appearance, but the bloom is very evanescent. The fruit is a fleshy berry, having the appearance and size of a small cherry, and as it ripens it assumes a dark red color. Each fruit contains two seeds embedded in a yellowish pulp, and the seeds are enclosed in a thin membranous endocarp (the parchment). The seeds which constitute the raw coffee of commerce are plano-convex in form, the flat surfaces which are laid against each other within the berry having a longitudinal furrow or groove. They are of a soft, semi-translucent, bluish or greenish color, hard and tough in texture. The regions found to be best adapted for the cultivation of coffee are well-watered mountain slopes at an elevation ranging from 1,000 to 4,000 feet above sea-level, in latitudes lying between 15° N. and 15° S., although it is successfully cultivated from 25° N. to 30° S. of the equator in situations where the temperature does not fall beneath 55° Fahr.

The early history of coffee as an economic product is involved in considerable obscurity, the absence of historical fact being compensated for by an unusual profusion of conjectural statements and by purely mythical stories. According to a statement contained in a manuscript belonging to the Bibliotheque Nationale in Paris, the use of coffee was known at a period so remote as 875 A.D., or exactly 1,000 years ago. In a treatise published in 1566 by an Arab sheikh it is stated that a knowledge of coffee was first brought from Abyssinia into Arabia about the beginning of the fifteenth century by a learned and pious Sheikh, Djemal-eddin-Ebn-Abou-Alfagger. According to the treatise alluded to, the use of coffee as a beverage was prevalent among the Abyssinians from the most remote period, and in Arabia the beverage when first introduced only supplanted a preparation from the leaves of the cat, *Celastrus edulis*. Its peculiar property of dissipating drowsiness and preventing sleep was taken advantage of in connection with the prolonged religious services of the Mahometans, and its use as a devotional antisoporific stirred up a fierce opposition on the part of the strictly orthodox and conservative section of the priests. Coffee was by them held to be an intoxicant beverage, and therefore prohibited by the Koran; and the dreadful penalties of an outraged sacred law were held over the heads of all who became addicted to its use. Notwithstanding the threats of divine retribution, and though all manner of devices were adopted to check its growth, the coffee-drinking habit spread rapidly among the Arabian Mahometans, and the growth of coffee, as well as its use as a national beverage, became as inseparably associated with Arabia as tea is with China. For about two centuries the entire supply of the world, which, however, was then limited, was obtained from the province of Yemen in South Arabia, where the celebrated Mocha or Mokha is still cultivated.

The knowledge of and taste for coffee spread but slowly outward from Arabia Felix, and it was not till

the middle of the sixteenth century that coffee-houses were established in Constantinople. Here also the new habit excited considerable commotion among the ecclesiastical public. The popularity of the coffee-houses had a depressing influence on the attendance at the mosque, and on that account a fierce hostility was excited among the religious orders against the new beverage. They laid their grievances before the sultan, who imposed a heavy tax upon the coffee-houses, notwithstanding which they flourished and extended. After the lapse of another hundred years coffee reached Great Britain, a coffee-house having been opened in 1652 in London by a Greek, Pasqua Rossei. Rossei came from Smyrna with Mr. D. Edwards, a Turkish merchant, and in the capacity of servant he prepared coffee daily for Mr. Edwards and his visitors. So popular did the new drink become with Mr. Edward's friends that their visits occasioned him great inconvenience to obviate which he directed Rossei to establish a public coffee-house, which he accordingly did. The original establishment was in St. Michael's Alley, Cornhill, over the door of which Rossei erected a sign with his portrait, subsequently announcing himself to be "the first who made and publicly sold coffee drink in England." It is remarkable that the introduction of coffee into England encountered the same hostility that it was fated to meet in other countries. Charles II., in 1675, attempted to suppress coffee-houses by a royal proclamation, in which it was stated that they were the resort of disaffected persons "who devised and spread abroad divers false, malicious, and scandalous reports, to the defamation of His Majesty's Government, and to the disturbance of the peace and quiet of the nation." On the opinion of legal officials being taken as to the legality of this step, an oracular deliverance was given to the effect "that the retailing of the coffee might be an innocent trade, but as it was used to nourish sedition, spread lies, and scandalized great men, it might also be a common nuisance." In England, as well as in other countries, the most effective check on the consumption of coffee was found to be a heavy tax, which, while restricting honest trade, opened a channel for extensive smuggling operations. Coffee is spoken of as being in use in France between 1640 and 1660, and thereafter it may be said that the use of coffee was an established custom in Europe. It is noteworthy that the three principal dietetic beverages of the world were introduced into Great Britain within a few years of each other. Cocoa was the first of the three which actually appeared in Europe, having been brought to Spain from South America; coffee followed, coming from Arabia by way of Constantinople; and tea, the latest of the series, came from China by the hands of the Dutch.

Down to 1690 the only source of coffee supply was Arabia, but in that year Governor-General Van Hoorne of the Dutch East Indies received a few coffee seeds by traders who plied between the Arabian Gulf and Java. These seeds he planted in a garden at Batavia, where they grew and flourished so abundantly that the culture, on an extended scale, was immediately commenced in Java. One of the first plants grown in that island was sent to Holland as a present to the governor of the Dutch East India Company. It was planted in the Botanic Garden at Amsterdam, and young plants grown from its seeds were sent to Surinam, where the cultivation was established in 1718. Ten years later the plant was introduced in the West Indian Islands, and gradually the culture extended throughout the New World, till now the progeny of the single plant sent from Java to Holland produces more coffee than is grown by all the other plants in the world. The cultivation is now general throughout all civilized regions of the tropical world.

In point of quantity Brazil heads the list of coffee-growing countries, its annual produce probably exceeding that of all other localities combined.

Raw coffee seeds are tough and horny in structure, and are devoid of the peculiar aroma and taste which are so characteristic of the roasted seeds. In minute structure coffee is so distinct from all other vegetable substances that it is readily recognized by means of the microscope, and as roasting does not destroy its distinguishing peculiarities, microscopic examination forms the readiest means of determining the genuineness of any sample.

The physiological and dietetic value of coffee depends principally upon the alkaloid caffeine which it contains, in common with tea, cocoa, maté or Paraguay tea, guarana, and the African kola nut. Its commercial value is, however, determined by the amount of the aromatic oil, caffeone, which develops in it by the process of roasting. By prolonged keeping it is found that the richness of any seeds in this peculiar oil is increased, and with increased aroma the coffee also yields a blander and more mellow beverage. Stored coffee loses weight at first with great rapidity, as much as 8 per cent. having been found to dissipate in the first year of keeping, 5 per cent. in the second, and 2 per cent. in the third; but such loss of weight is more than compensated by improvement in quality and consequent enhancement of value.

In the process of roasting, coffee seeds swell up by the liberation of gases within their substance—their weight decreasing in proportion to the extent to which the operation is carried. Roasting also develops with the aromatic caffeone above alluded to a bitter soluble principle, and it liberates a portion of the caffeine from its combination with caffetannic acid. Roasting is an operation of the greatest nicety, and one, moreover, of a crucial nature, for equally by insufficient and by excessive roasting much of the aroma of the coffee is lost; and its infusion is neither agreeable to the palate nor exhilarating in its influence. The roaster must judge of the amount of heat required for the adequate roasting of different qualities, and while that is variable, the range of roasting temperature proper for individual kinds is only narrow. In Continental countries it is the practice to roast in small quantities, and thus the whole charge is well under the control of the roaster; but in Britain large roasts are the rule, in dealing with which much difficulty is experienced in producing uniform torrefaction, and in stopping the process at the proper moment. The coffee-roasting apparatus is usually a malleable iron cylinder mounted to revolve over the fire on a hollow axle, which allows the escape of gases generated during torrefaction. The roasting of coffee should be done as short a time as practicable before the grinding for use, and as ground coffee especially parts rapidly with its aroma, the grinding should only be done when coffee is about to be prepared. Any ground coffee which may be kept should be rigidly excluded from the air.

While Arabia produces the choicest variety of coffee, the roasting of the seeds and the preparation of the beverage are also here conducted with unequalled skill.

Coffee belongs to the medicinal or auxiliary class of food substances, being solely valuable for its stimulant effect upon the nervous and vascular system. It produces a feeling of buoyancy and exhilaration comparable to a certain stage of alcoholic intoxication, but which does not end in depression or collapse. It increases the frequency of the pulse, lightens the sensation of fatigue, and it sustains the strength under prolonged and severe muscular exertion. The value of its hot infusion under the rigors of arctic cold has been

demonstrated in the experience of all arctic explorers, and it is scarcely less useful in tropical regions, where it beneficially stimulates the action of the skin. It has been affirmed that coffee and other substances containing the alkaloid caffeine have an influence in retarding the waste of tissue in the human frame, but careful and extended observation has demonstrated that they have no such effect.

COFFER-DAMS have from very early times been employed as useful, and in some cases indispensable, structures in executing works of marine and river engineering. By excluding the water from the area they inclose, the work can be carried on within them with nearly the same ease as on dry land. Whether used on a small or a large scale — whether as low-tide dams of clay or concrete of only a few feet in height, or as high-water dams of timber and puddle formed to resist the waves of the sea, they are in every sense structures of great importance in the practice of hydraulic engineering.

Tide-dams are chiefly used in laying the foundations of piers or other works that must be founded under low-water level. They are generally made of clay and planking, and are only carried to the height of about three feet above low-water. The water being pumped out during the last of the ebb tide affords one or two hours work at low-water, the dam being submerged on the rise of the tide. In such dams a sluice should be introduced, which when open may allow the water to escape with the falling tide and so save pumping. Such tide-dams when exposed to a considerable wash of sea may advantageously be made of cement rubble masonry, of the application of which, to coffer-dams, the earliest account we know is that stated in Stephenson's *Account of the Bell-Rock Lighthouse*, where he successfully employed that method of construction in 1808 in excavating the foundation of that work.

COFFIN (Lat. *cophinus*; Gr. *kofinos*, in both languages signifying a basket, coffer, or chest, but never a coffin). In the ordinary sense of the word a coffin is a chest or box in which dead bodies are buried or deposited in vaults.

COGNAC, a town of France, at the head of an arrondissement in the department of Charente, on the left bank of the River Charente, about thirty-two miles by rail west of Angoulême. The most important industry of Cognac is the distillation and exportation of the celebrated brandy to which the town gives its name (see BRANDY). Cognac is probably to be identified with one of the many places that bore the name of Condac; it was known as Coniacum in the Middle Ages. At an early period it was governed by lords of its own, but in the twelfth century it became subject to the counts of Angoumois. In 1238 it was the seat of an ecclesiastical council summoned by Gerard of Bordeaux; and in 1526 it gave its name to a treaty concluded against Charles V. by Francis I., Henry VIII. of England, the Pope, Venice, and Milan. In 1562 the town was captured by the Huguenots, and in 1651 it defied the prince of Condé. Before the Revolution it possessed a fine Benedictine monastery and two other convents. The population, which was only 4,000 about the middle of the eighteenth century, has increased to 13,000.

COHESION. See ATTRACTION, CAPILLARY ACTION, and CONSTITUTION OF BODIES.

COHAUILA, a Mexican town of about 6,000 inhabitants lying in the state of the same name.

COHOES, a thriving and important manufacturing town in Albany county, N. Y., at the confluence of the Mohawk with the Hudson, just below the famous fall, on the former river, to which it is indebted for its prosperity. It contains seven churches and twenty-two

public schools, the most remarkable of the churches being the Roman Catholic St. Bernard's and the Episcopal St. John's. The manufacturing establishments comprise six cotton mills, with 4,000 looms, eighteen knitting mills, a rolling-mill, a pin factory, a knitting-needle factory, two foundries, three machine shops, a paper mill and a bedstead factory. Its population in 1850 was 4,226; in 1860, 8,800; in 1870, 15,357, and in 1890, 22,509. A large number of French Canadians are to be found among the operatives.

COHORT, in the ancient Roman armies, was a portion of a legion, consisting usually of 600 men. Generally, there were ten cohorts to a legion.

COIF (Fr. *coiffe*, Ital. *cuffia*, a cap), a covering for the head, but more especially for the circular portion on the crown, which the Roman Catholic clergy are in the habit of shaving, and which is thence called the tonsure.

COIF, among the armor of the middle ages, was a sort of defensive hood, surmounted by a helmet, sometimes continuous with the hauberk, and sometimes separate.

COIMBATORE, a district of British India, in the Presidency of Fort St. George or Madras. It is bounded on the N. by Mysore, on the E. by the district of Salem, the Cauveri River marking the entire boundary line, on the S. by Madura and Travancore State, and on the W. by Cochin State, Malabar District, and the Nilgiri Hills. Coimbatore may be described as a flat, open country, hemmed in by mountains on the north, west, and south, but opening eastward on to the great plain of the Carnatic; the average height of the plain above sea level is about 900 feet. The principal rivers are the Cauveri, Bháwani, Noyel, and Amráwati. Numerous canals are cut from the rivers for the purpose of affording artificial irrigation, which has proved of immense benefit to the country. Excellent cotton and tobacco of a superior quality are produced. Extensive teak forests exist in the neighborhood. The principal town is Coimbatore.

COIMBRÁ, a city of Portugal, capital of the province of Beira, on the north bank of the Mondego, 115 miles N.N.E. of Lisbon. It is built for the most part on rising ground, and presents from the other side of the river a picturesque and imposing appearance, though in reality its houses have individually but little pretension, and its streets are, almost without exception, narrow and mean. It derives its present importance from being the seat of the only university in the kingdom — an institution which was originally established at Lisbon in 1291, was transferred to Coimbra in 1306, was again removed to Lisbon, and was finally fixed at Coimbra in 1527. The population of the city is 19,000.

COIN, a town of Spain, in the province of Malaga, and twenty miles west of the city of that name. It is well built, and has two large churches, an episcopal palace and a town hall. Population, 8,000.

COINAGE AND COINS. See BULLION, MINT, MONEY, and NUMISMATICS.

COIR, a rough, strong, fibrous substance obtained from the outer husk of the cocoanut. See COCOANUT PALM.

COIRE (the German *Chur*, Italian *Coira*, and *Quera* of the Romance language spoken in the district), the capital of the Swiss canton or the Grisons or Graubünden, at the foot of the valley of the Plessur, a short distance above the confluence of that river with the Rhone. The cathedral church of St. Lucius is its most remarkable building, ascribed in part to Bishop Tello of the eighth century, and deriving its name from a legendary British king, who is reputed to have suffered martyrdom in the town. Of antiquarian interest are

the statues of the Four Evangelists, the ancient wood carvings, and several monuments by Holbein and Dürer.

In the seventeenth century the city was frequently the center of the great struggle between the Cantons and the Austrian empire which raged with such fury and so many alterations of success. In 1802 the French general Massena occupied the town, and from that date the bishops have had no territorial possessions.

COJUTEPEC, a town of Central America, in the republic of San Salvador and the department of Cuscatlan, about fifteen miles east of the capital. It has a population of about 15,000, and from 1854 to 1858 it served as the seat of government instead of San Salvador, which had been ruined by an earthquake. In 1872 it took part in a revolutionary outbreak against the existing Government, and the Indian population unsuccessfully attacked the garrison. The town gives its name to a neighboring volcano, which rises to a height of 5,700 feet, and also to the extensive lake, otherwise known as the Lake of Ilopango, which lies a few miles to the south and gives rise to the Rio Jiboa.

COKE, the carbonaceous residue produced when coal is subjected to a strong red heat, out of contact with the air, until the volatile constituents are driven off. It consists essentially of carbon, the so-called fixed carbon, together with the incombustible matters or ash contained in the coal from which it is derived. In addition to these it almost invariably contains small quantities of hydrogen, oxygen, and nitrogen, the whole, however, not exceeding 2 or 3 per cent. It also contains water, the amount of which may vary considerably according to the method of manufacture. When produced rapidly and at a low heat, as in gas-making, it is of a dull black color, and a loose spongy or pumice-like texture, and ignites with comparative ease, though less readily than bituminous coal, so that it may be burnt in open fire-places; but when a long-continued heat is used, as in the preparation of coke for iron and steel melting, the product is hard and dense, is often prismatic in structure, has a brilliant semi-metallic lustre and silvery-grey color, is a good conductor of heat and electricity, and can only be burnt in furnaces provided with a strong chimney draught or an artificial blast. The strength and cohesive properties are also intimately related to the nature and composition of the coals employed, which are said to be caking or non-caking, according to the compact or fragmentary character of the coke produced.

The simplest method of coking, that in open heaps or piles, is conducted in a very similar manner to charcoal burning. The coal is piled in a domed heap about thirty feet in diameter and five feet high, with a chimney of bricks arranged in open chequer work in the center, around which the largest lumps of coal are placed so as to allow a free draught through the mass. The outside of the heap is covered with a coating of wet coke dust, except a ring about a foot high at the bottom. Fire is communicated by putting a few live coals near the top of the chimney, or from the interior by throwing them down the chimney, and the combustion proceeds downward and outward by the draught through the uncovered portion at the bottom. Whenever the fire takes too strong a hold and burns out to the surface it is damped by plastering over the spot with wet coke dust and earth, this being a point requiring considerable skill on the part of the coke burner. When flame and smoke are no longer given off, which usually happens in from five to six days, the whole surface is smothered with coke dust, and the chimney is stopped for three or four days longer, when the heap is sufficiently cooled to allow of the coke being broken up and removed, or, as it is called, drawn. The cooling is usually expedited by

throwing water upon the heap before drawing. The principle of coking in rectangular piles is generally similar to the foregoing, but chimneys are not used. The dimensions generally adopted are a height of from three and a half to five feet, and a breadth of twelve feet at the base.

Coke is used for all purposes where a smokeless fire is required, as, for instance, in drying malt or hops, or in raising steam in locomotives within the limits of towns, also for producing strong local heat, as in melting metals (gold, silver, brass, or steel) in crucibles in air furnaces. In blast furnaces its value depends upon the difficulty of combustion, so that the particles keep their form until they reach the proper place of combustion at the point of entry of the blast in the lower part of the furnace.

Apart from its convenience for special purposes, coke is not an economical fuel, the useful heating effect being about the same as that of an equal weight of coal. This circumstance has led to the nearly general abandonment of coke and the substitution of raw coal as fuel in locomotive engines on railways.

COKE, SIR EDWARD (1552–1633), one of the most erudite of English lawyers, was born at Mileham, in Norfolk, on February 1, 1552. In 1578 he was called to the bar, and in the next year he was chosen reader at Lyon's Inn. His extensive and exact legal erudition, and the skill with which he argued the intricate cases of Lord Cromwell and Edward Shelley, soon brought him a practice never before equaled, and caused him to be universally recognized as the greatest lawyer of his day. In 1594 he was promoted to the office of attorney-general, despite the claims of Bacon, who was warmly supported by the earl of Essex. As crown lawyer his treatment of the accused was marked by more than the harshness and violence common in his time; and the fame of the victim has caused his behavior in the trial of Raleigh to be lastingly remembered against him. While the prisoner defended himself with the calmest dignity and self-possession, Coke burst into the bitterest invective, brutally addressing the great courtier as if he had been a servant, in the phrase, long remembered for its insolence and its utter injustice,—“Thou hast an English face, but a Spanish heart!”

In 1606 Coke was made chief-justice of the Common Pleas, but in 1613 he was removed to the office of chief-justice of the King's Bench, which gave him less opportunity of interfering with the court. The independence of his conduct as a judge, though not unmixed with the baser elements of prejudice and vulgar love of authority, has partly earned forgiveness for the harshness which was so prominent in his sturdy character. Full of an extreme reverence for the common law which he knew so well, he defended it alike against the Court of Chancery, the ecclesiastical courts, and the royal prerogative. He freely gave his opinion that the royal proclamation cannot make that an offense which was not an offense before. An equally famous but less satisfactory instance occurred during the trial of Peacham, a divine in whose study a sermon had been found containing libellous accusations against the king and the Government. There was nothing to give color to the charge of high treason with which he was charged, and the sermon had never been preached or published; yet Peacham was put to the torture, and Bacon was ordered to confer with the judges individually concerning the matter. Coke declared such conference to be illegal, and refused to give an opinion, except in writing, and even then he seems to have said nothing decided. But the most remarkable case of all occurred in the next year (1616). A trial was held before Coke in which one of the counsel denied the validity of a grant made by the king to

the bishop of Lichfield of a benefice to be held *in commendam*. James, through Bacon, who was then attorney-general, commanded the chief-justice to delay judgment till he himself should discuss the question with the judges. At Coke's request Bacon sent a letter containing the same command to each of the judges, and Coke then obtained their signatures to a paper declaring that the attorney-general's instructions were illegal, and that they were bound to proceed with the case. His Majesty expressed his displeasure, and summoned them before him in the council-chamber, where he insisted on his supreme prerogative, which, he said, ought not to be discussed in ordinary argument. Upon this all the judges fell on their knees, seeking pardon for the form of their letter; but Coke ventured to declare his continued belief in the loyalty of its substance, and when asked if he would in the future delay a case at the king's order, the only reply he would vouchsafe was that he would do what became him as a judge. Soon after he was dismissed from all his offices on the following charges,—the concealment, as attorney-general, of a bond belonging to the king, a charge which could not be proved, illegal interference with the Court of Chancery, and disrespect to the king in the case of commendams. He was also ordered by the council to revise his book of reports, which was said to contain many extravagant opinions.

Coke did not suffer these losses with patience. He offered his daughter Frances, then little more than a child, in marriage to Sir John Villiers, brother of the favorite Buckingham. Her mother, supported at first by her husband's great rival and her own former suitor, Bacon, objected to the match, and placed her in concealment. But Coke discovered her hiding-place; and she was forced to wed the man whom she declared that of all others she abhorred. The result was the desertion of the husband and the fall of the wife. It is said, however, that after his daughter's public penance in the Savoy Church, Coke had heart enough to receive her back to the home which he had forced her to leave. Almost all that he gained by his heartless diplomacy was a seat in the council and in the Star-Chamber.

In 1620 a new and more honorable career opened for him. He was elected member of Parliament for Liskeard; and henceforth he was one of the most prominent of the constitutional party. It was he who proposed a remonstrance against the growth of Popery and the marriage of Prince Charles to the infanta of Spain, and who led the Commons in the decisive step of entering on the journal of the House the famous petition of the 18th December, 1621, insisting on the freedom of parliamentary discussion, and the liberty of speech of every individual member. In consequence, together with Pym and Sir Robert Philips, he was thrown into confinement; and, when in the August of the next year he was released, he was commanded to remain in his house at Stoke-Poges during his Majesty's pleasure. Of the first and second parliaments of Charles I. Coke was again a member. From the second he was excluded by being appointed sheriff of Buckinghamshire. In 1628 he was at once returned for both Buckinghamshire and Suffolk, and he took his seat for the former county. After rendering other valuable support to the popular cause, he took a most important part in drawing up the great Petition of Right. The last act of his public career was to bewail with tears the ruin which he declared the duke of Buckingham was bringing upon the country. At the close of the session he retired into private life; and the six years that remained to him were spent in revising and improving the works upon which, at least as much as upon his public career, his fame now rests. He died on the 3d September, 1633.

COLBERG, or **KOLBERG**, a fortified seaport town of Prussia, in the former province of Pomerania, and the government of Köslin, on the right bank of the Persante, which falls into the Baltic about a mile below the town. Population, 13,106. Colberg was the seat of a bishop as early as the tenth century, though it not long after lost this distinction. Till 1277 it was the chief town of the Cassubian Wends, and after that date it ranked as the most important place in the episcopal principality of Kamin, with which it passed in 1648 to Brandenburg. In the Thirty Years' War it was captured by the Swedes, after a protracted siege in 1631; and in the Seven Years' War it was one of the centers of the conflict. In 1758 it withstood the attacks of General Palmbach and his army of 10,000 men, and in 1760 it held out against the Russian and Swedish forces, both by sea and land, till it was relieved by the advance of Werner; but in 1761 it was compelled by famine to yield to Romanzoff after a four months' investment and violent bombardment. In 1807 it was surrounded by 18,000 men under the command of Feulie, Loison, and Mortier; but the burgher Nettelbeck within and the free fighter Schill without succeeded in defending it till the peace of Tilsit brought the war to a close.

COLBERT, **JEAN BAPTISTE**, one of the greatest among the great statesmen of France, was born on the 29th of August, 1619, at Rheims, where his father and grandfather were merchants. He claimed to be the descendant of a noble Scottish family, but those who have investigated the matter have almost, without exception, decided against the pretension. His youth is said to have been spent in a Jesuit college, in the office of a Parisian banker, and in that of a Parisian notary, Chapelain, the father of the poet. But the first fact on which we can rely with confidence is that, when not yet twenty, he obtained a post in the war office, by means of the influence that he possessed through the marriage of one of his uncles to the sister of Michel Le Tellier, the secretary of state for war. During some years he was employed in the inspection of troops and other work of the kind, but at length his ability, his extraordinary energy, and his untiring laboriousness induced Le Tellier to make him his private secretary. These qualities, combined, it must be confessed, with a not over-delicate readiness to seize every opportunity of advancement, soon brought Colbert both wealth and influence. In 1647 we find him receiving the confiscated goods of his uncle Pussort, in 1648 obtaining 40,000 crowns with his wife Marie Charron, in 1649 appointed councillor of state.

It was the period of the wars of the Fronde; and in 1651 the triumph of the Condé family drove Cardinal Mazarin from Paris. Colbert, now aged thirty-two, was engaged to keep him acquainted with what should happen in the capital during his absence. Colbert obtained the higher object of his ambition; the confidence of Mazarin, so far as it was granted to any one, became his, and he was intrusted with matters of the gravest importance. In 1659 he was giving directions as to the suppression of the revolt of the gentry which threatened in Normandy, Anjou, and Poitou, with characteristic decision arresting those whom he suspected and arranging every detail of their trial, the immediate and arbitrary destruction of their castles and woods, and the execution of their chief, Bonnesson. In the same year we have evidence that he was already planning his great attempt at financial reform.

In 1661 the death of Mazarin allowed Colbert to take the first place in the administration. It was some time before he assumed official dignities; but in January, 1664, he obtained the post of superintendent of buildings; in 1665 he was made controller-general; in 1669

he became minister of the marine; and he was also appointed minister of commerce, the colonies, and the king's palace. In short, he soon acquired power in every department except that of war.

A great financial and fiscal reform at once claimed all his energies. This he saw was the first step toward raising France to the lofty position he intended her to occupy. The country was in economic chaos. Those who had the fiscal administration in their hands, from the superintendent to the meanest of the tax-farmers, robbed and misappropriated almost as they pleased. The government loans were arranged, not so as to be most advantageous to the State, but so as most to aggrandize the individuals who were interested in them. Not only the nobility, but many others who had no legal claim to exemption, paid no taxes; the weight of the burden fell on the wretched country-folk. Colbert sternly and fearlessly set about his task. Supported by the young king, Louis XIV., he aimed the first blow at the greatest of the extortioners—the bold and powerful superintendent, Fouquet. He was accused of high treason, not without sufficient grounds, for it was known that he had prepared to meet an arrest formerly contemplated by an appeal to force. The most minutely careful precautions were taken by Colbert for his seizure, and he was tried before a specially prepared chamber of justice. Nevertheless, the trial was protracted during three years, and the sentence passed was not death but banishment. The government, however, carried out its plans. The superintendent was safely disposed of in the state prison of Pignerol; just disgrace fell upon Councilor d'Ormesson and the other judges who had averted the punishment Fouquet richly deserved; and many minor officials, convicted of speculation, were treated with great severity, some being banished, some sent to the galleys, and some even hanged.

The office of superintendent and many others dependent upon it being abolished the supreme control of the finances was vested in a royal council. The sovereign was its president; but Colbert, though for four years he only possessed the title of intendant, was its ruling spirit, great personal authority being conferred upon him by the king. The career on which Colbert now entered must not be judged without constant remembrance of the utter rottenness of the previous financial administration. His ruthlessness in this case, dangerous precedent as it was, was perhaps necessary; individual interests could not be respected. Guilty officials having been severely punished, the fraudulent creditors of the government remained to be dealt with. Colbert's method was simple. Some of the public loans were totally repudiated, and from others a percentage was cut off, which varied, at first according to his own decision, and afterwards according to that of the council which he established to examine all claims against the State.

Much more serious difficulties met his attempts to introduce equality in the pressure of the taxes on the various classes. To diminish the number of the privileged was impossible, but false claims to exemption were firmly resisted, and the unjust direct taxation was lightened by an increase of the indirect taxes, from which the privileged could not escape. The mode of collection was at the same time immensely improved.

Order and economy being thus introduced into the working of the government, the country, according to Colbert's vast, yet detailed plan, was to be enriched by commerce. Manufactures were fostered in every way he could devise. New industries were established, inventors protected, workmen invited from foreign countries, French workmen absolutely prohibited to emigrate. To maintain the character of French goods in foreign markets, as well as to afford a guarantee to

the home consumer, the quality and measure of each article were fixed by law, breach of the regulations being punished by public exposure of the delinquent and destruction of the goods, and, on the third offense, by the pillory. But whatever advantage resulted from this rule was more than compensated by the disadvantages it entailed. The production of qualities which would have suited many purposes of consumption was prohibited, and the odious supervision which became necessary involved great waste of time and a stereotyped regularity which resisted all improvements. And other parts of Colbert's scheme deserve still less equivocal condemnation. By his firm maintenance of the corporation system, each industry remained in the hands of certain privileged bourgeois; in this way, too, improvement was greatly discouraged; while to the lower classes opportunities of advancement were closed. With regard to international commerce Colbert was equally unfortunate in not being in advance of his age; the tariffs he published were protective to an extreme. The interests of internal commerce were, however, wisely consulted. Unable to abolish the duties on the passage of goods from province to province, he did what he could to induce the provinces to equalize them. The roads and canals were improved. The great canal of Languedoc was planned and constructed by Riquet under his patronage. To encourage trade with the Levant, Senegal, Guinea, and other places, privileges were granted to companies; but, like the more important East India Company, all were unsuccessful. The chief cause of this failure, as well as of the failure of the colonies, on which he bestowed so much watchful care, was the narrowness and rigidity of the government regulations.

The greatest and most lasting of Colbert's achievements was the establishment of the French marine. The royal navy owed all to him, for the king thought only of military exploits. For its use, Colbert reconstructed the works and arsenal at Toulon, founded the port and arsenal of Rochefort, and the naval schools of Rochefort, Dieppe, and Saint-Malo, and fortified, with some assistance from Vauban (who, however, belonged to the party of his rival Luvois), among other ports those of Calais, Dunkirk, Brest, and Havre. To supply it with recruits he invented his famous system of classes, by which each seaman, according to the class in which he was placed, gave six months' service every three or four or five years. For three months after his term of service he was to receive half-pay; pensions were promised; and, in short, everything was done to make the navy popular.

Nor was the mercantile marine forgotten. Encouragement was given to the building of ships in France by allowing a premium on those built at home, and imposing a duty on those brought from abroad; and as French workmen were forbidden to emigrate, so French seamen were forbidden to serve foreigners on pain of death.

In art and literature Colbert took much interest. He possessed a remarkably fine private library, which he delighted to fill with valuable manuscripts from every part of Europe where France had placed a consul. He has the honor of having founded the Academy of Sciences (now called the Institut de France), the Observatory, which he employed Perrault to build and brought Cassini from Italy to superintend, the Academies of Inscriptions and Medals, of Architecture, and of Music, the French Academy at Rome, and Academies at Arles, Soissons, Nîmes, and many other towns, and he reorganized the Academy of Painting and Sculpture which Richelieu had established. He was a member of the French Academy; and one very characteristic rule,

recorded to have been proposed by him with the intention of expediting the great Dictionary, in which he was much interested, was that no one should be accounted present at any meeting unless he arrived before the hour of commencement and remained till the hour for leaving. In 1673 he presided over the first exhibition of the works of living painters; and he enriched the Louvre with hundreds of pictures and statues. He gave many pensions to men of letters, among whom we find Molière, Corneille, Racine, Boileau, Huet, and Varillas, and even foreigners, as Huyghens, Vossius the geographer, Carlo Dati the Dellacruscan, and Heinsius the great Dutch scholar.

Indeed to everything that concerned the interests of France, Colbert devoted unsparing thought and toil. Besides all that has been mentioned, he found time to do something for the better administration of justice (the codification of ordinances, the diminishing of the number of judges, the reduction of the expense and length of trials), for the establishment of a superior system of police, and even for the improvement of the breed of horses and the increase of cattle. As superintendent of public buildings he enriched Paris with boulevards, quays, and triumphal arches; he relaid the foundation-stone of the Louvre, and brought Bernin from Rome to be its architect; and he erected its splendid colonnade upon the plan of Claude Perrault, by whom Bernin had been replaced. He was not permitted, however, to complete the work, being compelled to yield to the king's preference for residences outside Paris, and to devote himself to Marly and Versailles.

In estimating the value of Colbert's ministry, two distinct questions must be considered — What its results would have been in the absence of counteracting influences, over which he had no control, and what they actually were. To the first it may be answered that France, peaceful, enriched by a wide-spread commerce, and freed from the weight of taxes, alike heavy and intrinsically mischievous, would probably have developed powers that would have enabled her to throw aside what was harmful in his policy, and possibly to attain liberty without the frenzied struggle of the Revolution. To the second question a very different reply must be given. What the great "ministre de la paix" built up was torn down, even as he built it, to erect the unholy fabric of his master's military glory. The war department was in the hands of Colbert's great rival, Luvois; and to every appeal for peace Louis was deaf. He was deaf also to all the appeals against the other forms of his boundless extravagance which Colbert, with all his deference towards his sovereign, bravely ventured to make. Thus it came about that, only a few years after he had commenced to free the country from the weight of the loans and taxes which crushed her to the dust, Colbert was forced to heap upon her a new load of loans and taxes more heavy than the last. Henceforth his life was a hopeless struggle, and the financial and fiscal reform which, with the great exception of the establishment of the navy, was the most valuable service to France contemplated by him, came to naught.

Depressed by his failure, deeply wounded by the king's favor for Luvois, and worn out by overwork, Colbert's strength gave way at a comparatively early age. In 1680 he was the constant victim of severe fevers, from which he recovered for a time through the use of quinine prescribed by an English physician. But in 1683, at the age of sixty-four, he was seized with a fatal illness, and on the 6th of September he expired. It was said that he died of a broken heart, and a conversation with the king is reported in which Louis disparagingly compared the buildings of Versailles, which Colbert was superintending, with the works constructed

by Luvois in Flanders. He took to bed, it is true, immediately afterwards, refusing to receive all messages from the king; but his constitution was utterly broken before, and a post-mortem examination proved that he had been suffering from stone. His body was interred in the secrecy of night, for fear of outrage from the Parisians, by whom his name was cordially detested.

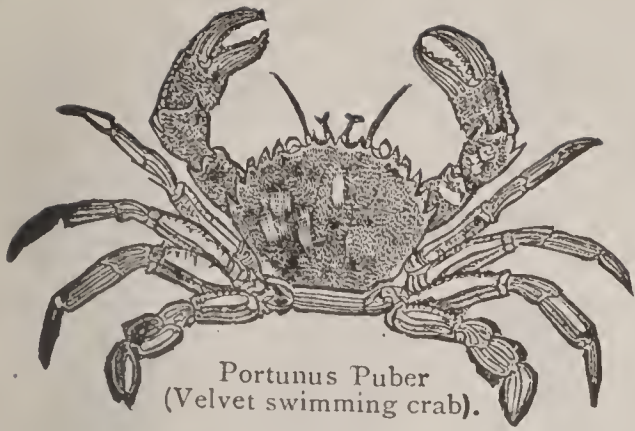
Colbert was a great statesman, who did much for France, and would have done vastly more had it been possible. He was a great statesman in that he conceived a magnificent yet practicable scheme for making France first among nations, and in that he possessed a matchless faculty for work, neither shrinking from the vastest undertakings nor scorning the most trivial details.

COLCHESTER, a market-town, municipal and parliamentary borough, and river-port of England, in the County of Essex, fifty-one miles from London by the Great Eastern Railway, on the Colne, which is there crossed by three bridges. Population (1889), 30,000.

COLCHESTER, CHARLES ABBOT, LORD (1757-1829), born at Abingdon, was the son of Dr. John Abbot, rector of All Saints, Colchester, and, by his mother's second marriage, half-brother of the famous Jeremy Bentham. In 1796 Abbot commenced his career as a reformer in Parliament, by obtaining the appointment of two committees, — the one to report on the arrangements which then existed as to temporary laws or laws about to expire, the other to devise methods for the better publication of new statutes. To the latter committee, and a second committee which he proposed some years later, it is owing that copies of new statutes were thenceforth sent to all magistrates and municipal bodies. To Abbott's efforts were also due the establishment of the Royal Record Commission, the reform of the system which allowed the public money to lie for some time at long interest in the hands of the public accountants, and, most important of all, the Act for taking the first census, that of 1801. On the formation of the Addington ministry in March, 1801, Abbot became chief secretary and privy seal for Ireland; and in the February of the following year he was chosen speaker of the House of Commons — a position which he held with universal satisfaction till 1817, when an attack of erysipelas compelled him to retire. On the 8th May, 1829, he died of erysipelas. His speeches against the Roman Catholic claims were published in 1828.

COLCHICUM, the Meadow Saffron, or Autumn Crocus (*Colchicum autumnale*), is a perennial plant of the natural order *Melanthaceæ* or *Colchicaceæ*, found wild in rich moist meadow-land in England and Ireland, in Middle and Southern Europe, and in the Swiss Alps. It has pale-purple flowers, rarely more than three in number; the perianth is funnel-shaped, and produced inferiorly into a long slender tube, in the upper part of which the six stamens are inserted. The ovary is three-celled, and lies at the bottom of this tube. The leaves are three or four in number, flat, lanceolate, erect, and sheathing; and there is no stem. Propagation is by the formation of corms from the parent bulb, and by seeds. The latter are numerous, round, reddish-brown, and of the size of black mustard-seeds. The bulb of the meadow-saffron attains its full size in June or early in July. A smaller bulb is then formed from the old one, close to its root; and this in September and October produces the crocus-like flowers. In the succeeding January or February it sends up its leaves, together with the ovary, which perfects its seeds during the summer. The young corm, at first about the diameter of the flower-stalk, grows continuously, till in the following July it attains the size of a small apricot. The parent bulb remains attached to the new one.

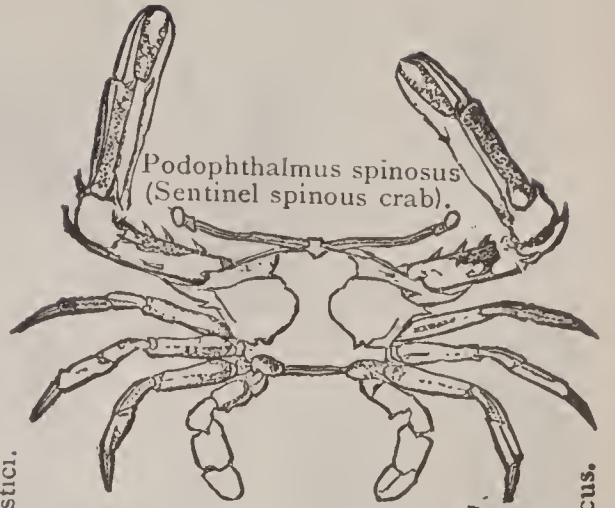
COLEOPTERA.



Portunus Puber
(Velvet swimming crab).



Lophonocerus barbicornis.



Podophthalmus spinosus
(Sentinel spinous crab).



Churchyard Beetle
(Blaps mortisaga).



Tenebria molitor
(Flour beetle).



Orchestes alni.



Curculia lianistici.



Hispa fabricii.



Laxusa praplecticus.



Bruchus pisi
(Pea Weevil).



Anthribus latirostris.



Eumorphus Sumatrensis.



Lucanis cinnamomens.



Meloe proscarabicus
(Oil beetle).



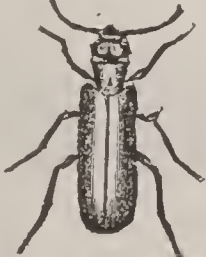
Brentus
Anchorago.



Lamia
aurocincta.



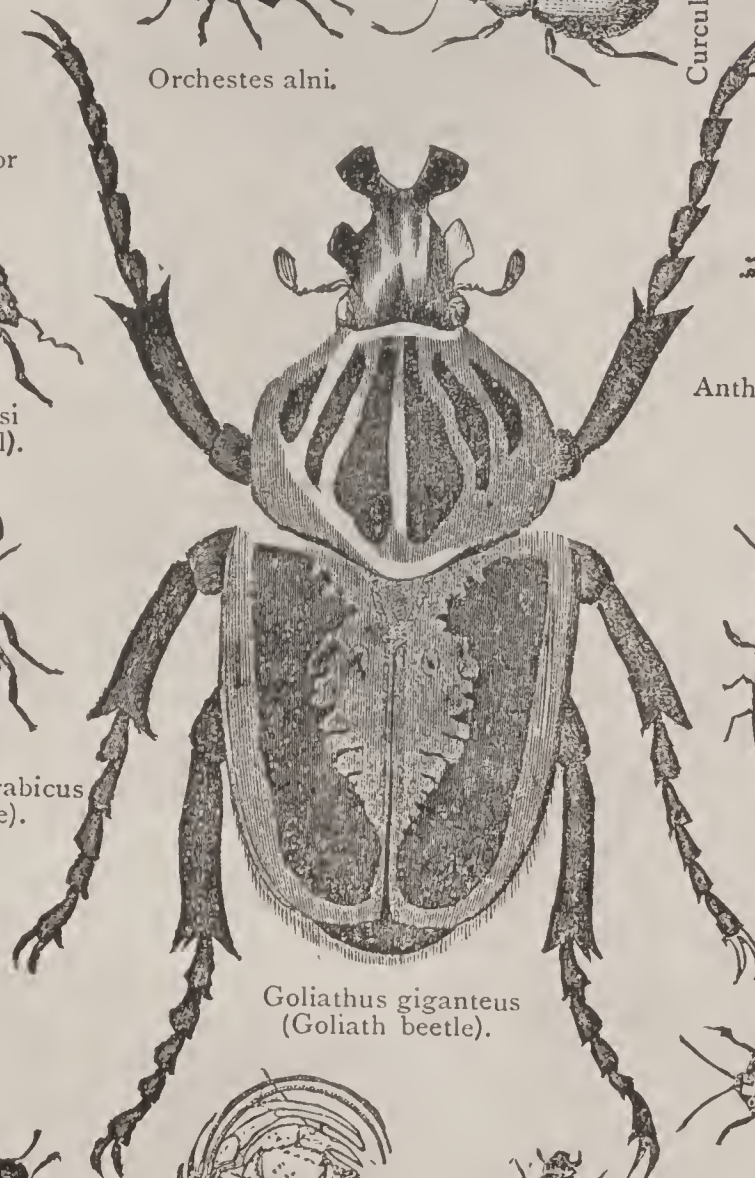
Endomychus
coccineus.



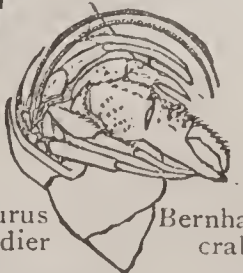
Lytta vesicatoria
(Blister beetle).



Chrysomela
humeralis.



Goliathus giganteus
(Goliath beetle).



Pagurus
Soldier



Bernhardus
crab.

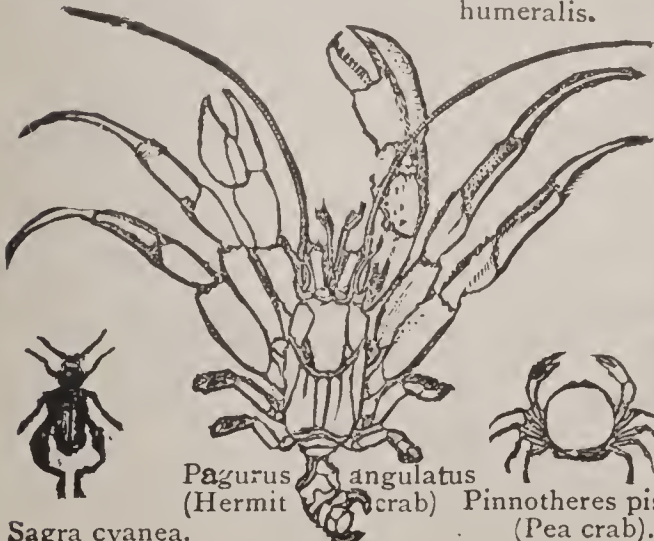


Scolytus ulmi.

Cassida longicornis
(Longhorned Tortoise beetle).



Cocinella ocellata
(Eyed lady beetle).



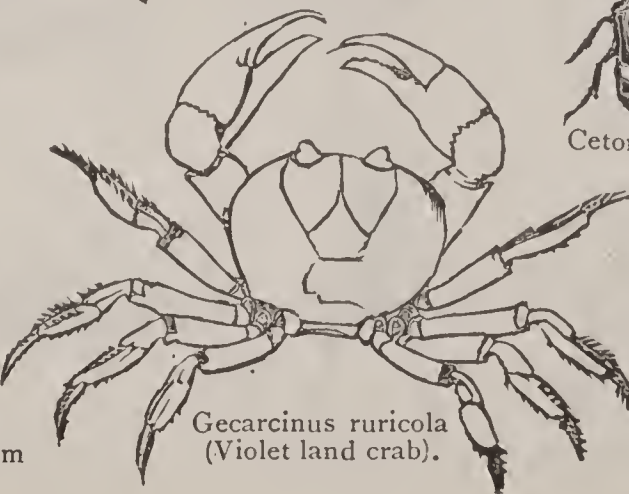
Pagurus
angulatus
(Hermit crab)



Pinnotheres pisum
(Pea crab).



Sagra cyanea.



Gecarcinus ruricola
(Violet land crab).



Cetonia Baxii.



Corystes dentatus
(Masked crab).

Meal Worm
Larva of

COLEOPTERA.



Dermestes lardarius
(Bacon beetle).

Calosoma sycophanta.

Ruddy Rove beetle, *Dytiscus herminieri*.

Head of *Dyt serriacornis*.

Pupa of *Dytiscus*.

Larva of Glow worm.

Gyrinus sulcatus.

Stenus biguttatus.

Female Glow worm.

Larva of *Buprestis gigas*.

Larva of *Dytiscus*.

Geotrines Blackburnei.

Phaneus imperator.

Silpha quadripunctata.

Lampyrus Savignii. *Hister reniformis* (Mimic beetle). Male Glow worm.

Organs of the mouth.

Antenna of Cockchafer (male).

Sacred beetle.

Sexton beetle.

Oxyporus rufus.

Ateuchus Ægyptorum.

Mouth of stag beetle.

Labrum.

Mandibulæ.

Cockchafer.

Antenna of Cockchafer (female).

Mouth of *Dyt serriacornis*.

Metallic beetle.

Slender footed Tiger beetle.

Javanese mormolyce.

*Elatér plagiat*us

Dytiscus raesellii.

Hive beetle.

Arthia angulata.

Antenna of *Gyrinus*.

Under side of stag beetle.

Procerus lauricus.

Brachinus aurinni.

Carabus rutilans.

Enceladus gigas.

Lucanus cervus (Stag beetle).

Manticera maxillosa.

Wood Tiger beetle.

Hydrophilus piceus (Black water beetle).

COLD HARBOR, THE BATTLE OF, was fought on June 3, 1864, near Cold Harbor, Va., between the Federal army under Grant and the Confederates under Lee. It was indecisive in its results.

COLDSTREAM, a town of Scotland, in Berwickshire, fifteen miles west of Berwick, on the north bank of the Tweed, there crossed by a bridge of five arches. It is situated on the principal thoroughfare between England and Scotland, and in the neighborhood of the ford by which the Scotch and English armies were wont to cross the river in olden times. In the period before the Reformation it was the seat of a priory famous in history as the place where the Papal legate, in the reign of Henry VIII., published a bull against the printing of the Scriptures; and in the present century, by a curious irony of fate, the very site of the building was occupied by an establishment under Dr. Adam Thomson for the production of Bibles at a low rate.

COLDWATER, the county seat of Branch county, Mich., is situated on a stream of the same name, fifty-five miles west of Adrian, and 156 miles east of Chicago. It is an important manufacturing town; the principal products being carriages, agricultural implements, leather, furniture, and cooperage. There are a courthouse and public school, banks, churches, and halls. Two newspapers are published. Pop. (1890), 5,462.

COLEBROOK, HENRY THOMAS, (1765-1837), an eminent Oriental scholar, the third son of Sir George, the second baronet of that name, was born in London. He was a director of the Asiatic Society, and many of the most valuable papers in the Society's *Transactions* were communicated by him.

COLENSO, JOHN WILLIAM, was born in Cornwall, England, January 24, 1814, educated at Cambridge, where he became Fellow of his college, and from 1846 to 1853 held a rectorship in Norfolk. In the last named year he was appointed first Bishop of Natal, South Africa. He adopted the cause of the Zulus against the Boers and the English authorities at Cape-town, and thus drew upon himself the enmity of the official class. In 1862 he began the publication of a series of books, in which he called in question the historical accuracy and the Mosaic authorship of the Pentateuch. Ecclesiastical prosecution followed; Colenso was deposed, reinstated, excommunicated by the church authorities, and indorsed by the highest legal authority. This affray occupied the law courts for many years, but he never swerved from his course, and published the last book of his critical analysis of the Pentateuch in 1879. He also wrote some excellent textbooks on arithmetic and algebra. Bishop Colenso died at Durban, Natal, June 20, 1883.

COLEOPTERA, or **BETTERLES**, a vast and remarkable homogeneous order of insects, characterized, as the name implies (a sheath and wings), by the structure of the upper wings, or *elytra*, as they are called, which are so modified as to form shields for the protection of the under wings — the true organs of flight in those insects.

The name was given, and the principal characters of the order defined, by Aristotle.

The body in Coleoptera is enclosed in a chitinous integument of a more or less rigid consistence, and is somewhat oval in form, although in most cases greatly longer than broad. In this respect, however, the utmost diversity prevails even among the members of the same family, the form being modified to suit the habits of the insect. Thus, according to Bates, among the South American forms of *Dermestidae*, the species of one group are cubical in shape, and live in dung; those of another, inhabiting the stems of palm trees, are much flatter; those of a third, only found under the bark of trees, are

excessively depressed, some species being literally "as thin as a wafer;" while the members of a fourth group of the same family are cylindrical in shape, and are woodborers, "looking," says Bates, "like animated gimlets, their pointed heads being fixed in the wood, while their glossy bodies work rapidly round so as to create little streams of sawdust from the holes."

The coloring of the chitinous integument of beetles is often exceedingly brilliant, and the elytra and other parts of many species are largely used in the manufacture of personal ornaments. This coloring can in many instances be shown to bear a close resemblance to that of surrounding nature; thus burrowing beetles, and those which dwell in subterranean caves, are generally black or brown; Weevils, found on the ground, are earth-colored; while arboreal species of this and other groups are of various shades of green. This assimilation in color to surrounding nature is probably useful in assisting them to elude their enemies; and when the markings are such as to render the beetle conspicuous it is often provided with, and no doubt protected by, an offensive odor or nauseous juices; thus the naturalist already mentioned found on a sandy beach two species of Tiger Beetles, the one of a pallid hue like the sand it ran upon, the other of a brilliant and conspicuous copper color, but having "a strong, offensive, putrid, and musky odor," from which the other was entirely free. Fireflies, a group of Coleopterous insects, are also exceedingly conspicuous, but are similarly protected. The phenomena of mimicry, or the imitation of one animal by another for protective purposes, have been observed in several instances among beetles. Mr. Belt, in his interesting work, *The Naturalist in Nicaragua*, states that he captured what he supposed was a hairy caterpillar, but on closer inspection he found it to be a Longicorn Beetle, the antennæ being concealed among the hair. Hairy caterpillars are almost universally rejected by insect-eating animals, and thus probably this beetle shared in the immunity from attack accorded to its model. A species of beetle found in South America closely resembles a bee found in the same locality, its body being covered with hair and its legs similarly tufted; another, with yellow banded abdomen, sufficiently resembled a wasp as to make its captor both cautious and timid in handling it at first. One of the *Chrysomelidae* (*Crioceris merdigera*) is said to disguise itself by covering its upper surface with its own dung; while many species, when in danger, simulate death. Brilliant coloring in beetles is not as in some orders of animals a characteristic mainly of the male sex, both sexes being usually similar in this respect, while in those cases in which they differ, the female is generally the more gaudy insect. The chief external difference, however, between the sexes in many beetles is to be found in the presence of horns on the head and thorax of the males. These vary exceedingly in their development even in individuals of the same species, while in their form they resemble the horns of the rhinoceros, and the antlers of the stag; and as among mammals the reindeer is exceptional in the possession of antlers by both sexes, so among beetles there is at least one species, *Phanaeus lancifer*, in which both male and female are similarly equipped. The male beetle has not been observed to use its horns either for purposes of offense or defense, some of the most pugnacious species being entirely destitute of them; and in Darwin's opinion these appendages have been acquired merely as ornaments.

The abdomen of Coleopterous insects is sessile, that is, attached to the thorax by its largest transverse diameter. On the under side it is always of a firm horny consistence, while the upper surface is generally soft, being protected by the elytra and wings; when these,

however, are absent or abbreviated, it is as hard above as below. It bears the organs of generation as well as the respiratory openings, or *stigmata*, which form the apertures of the tracheæ by means of which air is disseminated through all parts of the insect system. Beetles belonging to several distinct families possess stridulating organs, and these are generally found in both sexes. The apparatus by which the sound, loud enough to be heard in many cases at some yards distance, is produced, consists of a couple of delicate rasps placed on the upper surface of the abdomen, on the elytra, or on the prothorax, and a scraper formed by the margins of the elytra, the edges of the abdominal segments, or the mesothorax, the rapid motion of the latter over the rasps producing the sound. In many cases, according to Darwin, the males only stridulate, the females being destitute of those organs, and in such cases the sound is employed as a call to the female; with most beetles, however, the stridulation proceeds from both sexes and serves as a mutual call. Beetles are entirely destitute of stinging organs, but a few are furnished with a retractile tube, or *ovipositor*, at the extremity of the abdomen, by means of which they deposit their eggs in the cracks of wood and other suitable localities.

The eggs of beetles are deposited in a great variety of situations, and in the case of a certain group of *Staphylinidæ* found in the nests of white ants in South America, it was recently discovered by Schödte that the eggs were not deposited at all, but remain in the abdomen until they are hatched. These ovoviviparous beetles are only one-tenth of an inch in length, and have the abdominal region enormously distended and turned over so as to rest on the back. Dung beetles deposit their eggs in the midst of the manure on which the future larvæ feed; the Sacred Beetle of Egypt rolling each of hers about until a globular pellet is formed, when the whole is buried in the ground; while the Sexton Beetle finds an appropriate *nidus* for her eggs in the dead bodies of animals. One species of *Cleridæ* selects the nest of the solitary bee, another that of the hive bee, while several species of Rose Beetles choose the nest of the ant for this purpose. The water beetles belonging to the genus *Hydrophilus* deposit their eggs in a single mass, which they surround with a cocoon, formed of a silky substance secreted by certain glands in the abdomen, and then either fix this to the leaf of an aquatic plant or leave it to float on the surface of the water. Certain species of the Weevil tribe deposit their eggs on the leaves of trees, splitting the median nervures in several places, and afterwards rolling them up. In its progress from egg to perfect insect the beetle undergoes complete metamorphosis, passing from the larval to the pupa stage, and remaining totally quiescent during the latter.

Coleopterous larvæ generally consist of thirteen segments, of which those forming the head and thorax are usually of a hard horny texture,—the mouth, as in the perfect insect, being masticatory, and the eyes, when present, simple, or *ocelli*. They have usually six legs; and prolegs, as in caterpillars, are occasionally present; but the larvæ of many species are legless grubs, while in others the limbs are but feebly developed. In those groups in which the elytra are abbreviated, the larvæ are exceedingly active and closely resemble the perfect insect. Like their parents the larvæ of beetles feed on living animals, on plants, or on decaying animal or vegetable substances, but greatly exceed the perfect insect in the quantity of food which they consume, and it is in this condition that beetles do most injury to field crops and forest trees. The larvæ of burrowing beetles, known as "White Worms," spend their existence in the earth, and are destitute of eyes; those of

the Stag Beetles and other wood-boring groups live in the trunks of decaying trees; mealworms—the larvæ of *Tenebrio molitor*—live enveloped in flour, and those of the Corn Weevil in the heart of the wheat grain; while those of another species of Weevil make their homes in the fleshy parts of the receptacles of composite flowers. The larvæ of Oil Beetles (*Meloe*), or at least certain species of them whose life-history has been observed, after leaving the egg, which the perfect insect has deposited just beneath the surface of the ground, climb upon the stems of plants, and take the first opportunity of attaching themselves to any insect that may happen to alight near them, and in this way they are occasionally conveyed into the hives of bees, in which alone they meet with their appropriate food. Only a few of them are thus fortunate, the majority of the larvæ getting attached to the wrong insect, and so perishing of hunger. The species probably owes its preservation to the great number of eggs, amounting to upwards of 4,000, deposited by a single female. The larvæ of one group of water beetles, *Hydrophilus*, swim readily by means of their ciliated legs, those of another group, *Dytiscus*, make use also of their flexible abdomen provided at its extremity with a pair of leaf-like appendages; while the Whirligig larvæ (*Gyrinus*), in addition to ciliated swimming organs, are provided with four movable hooks on the posterior segment, by which they are enabled to take extensive leaps. The duration of the larval state varies in different groups of beetles, being comparatively short in leaf-eating species, but lasting for three or four years in those which burrow in the earth or in wood. The larvæ in the latter case pass the winter in a torpid state, abstaining almost entirely from food, until awakened from their temporary trance by the return of genial weather, when they greedily attack their favorite food, and grow rapidly. In passing from the condition of a larva, the beetle does not, like the butterfly, assume a form altogether different from that of the perfect insect, but in the pupa or nymph state shows all the parts of the future insect, only in a condition of almost complete immobility. In preparing for this quiescent period, the larvæ of many species surround themselves with a cocoon, consisting, in the case of the *Scarabæidæ*, of earth and small pieces of wood glued together with saliva, and in that of the Goliath Beetles, of mud. Others resemble the larvæ of moths in constructing tubes in which to undergo their transformations, while the larvæ of Lady-Birds—*Coccinella*—suspend themselves by the tail and make use of their larval covering as a protection to the nymph within. When the condition of nymph is assumed in autumn, no further change takes place till the ensuing spring, but under suitable conditions of heat this stage does not last usually for more than three or four weeks, after which it emerges a full-blown beetle.

The number of known species of beetles is estimated at 70,000, and these are probably not more than one-half of the total number in existence—Great Britain alone possessing 3,614 indigenous species. They occur in greatest abundance in the wooded parts of tropical regions. "A large proportion of the beetles of the tropics," says Wallace, "are more or less dependent on vegetation and particularly on timber, bark, and leaves in various stages of decay. In the untouched virgin forest the beetles are found at spots where trees have fallen through decay and old age." The number gradually decreases towards the poles, only a few species occurring as far north as Greenland.

COLERAINE, a municipal and parliamentary borough and market-town of Ireland, in the county of Londonderry, on the Bann, four miles from its mouth, and 145 miles north of Dublin. Population 7,000.

COLERIDGE, HARTLEY, the elder son of Samuel Taylor Coleridge, was born on the 19th of September, 1796, at Clevedon, near Bristol, England. In 1815 he went to Oxford, as a scholar of Merton College, the means for his support being principally provided by Southey. His university career, however, was very unfortunate. He had inherited the weakness of purpose, as well as the splendid conversational powers, of his father, and, having never enjoyed the benefit of a regular discipline, lost all self-restraint amidst the gayeties of Oxford, and finally lapsed into habits of intemperance. He was successful in gaining an Oriel fellowship, but at the close of the probationary year was judged to have forfeited it. The authorities could not be prevailed on to reverse their decision; but they awarded to him a free gift of £300. With this, Hartley Coleridge came to London in 1821, and remained there for two years, during which he wrote short poems for the *London Magazine*. His next step was to set up school at Ambleside, but this scheme failed, after five years of struggle in a position for which he was wholly unfit. Coleridge then removed to Grasmere, where he lived in great seclusion,—writing between 1826 and 1831 *Essays* for *Blackwood*, and in 1832 his *Biographia Borealis*, or *Lives of Northern Worthies*. In 1839 appeared his last work, the *Life of Massinger*, an elaborate and artistic production. The closing decade of Coleridge's life was wasted in what he himself calls "the woeful impotence of weak resolve." In 1848 his health became sensibly affected, and he expired on the 6th of January, 1849.

COLERIDGE, SIR JOHN TAYLOR (1790–1876), nephew of S. T. Coleridge, was born at Tiverton, and was educated, with Arnold and Keble, at Corpus Christi College, Oxford. In 1869, although in extreme old age, he produced his pleasant *Memoir of the Rev. John Keble, M. A.*, a third edition of which was issued within a year.

COLERIDGE, SAMUEL TAYLOR, one of the most remarkable of English poets and thinkers, was born on the 21st of October, 1772, at his father's vicarage of Ottery St. Mary's, Devonshire. On the death of his father, a presentation to Christ's Hospital—acceptable in a family of ten—was procured for Coleridge by Judge Buller, an old pupil of his father's. He had already begun to give evidence of a powerful imagination, and he has described in a letter to his valued friend, Mr. Poole, the pernicious effect which the admiration of an uncle and his circle of friends had upon him at this period. For eight years he continued at Christ's Hospital. Of these school days Charles Lamb has given delightful glimpses in the *Essays of Elia*. The head master, Bowyer, though a severe disciplinarian, was on the whole respected by his pupils. Middleton, afterward known as a Greek scholar, and bishop of Calcutta, reported Coleridge to Bowyer as a boy who read Virgil for amusement, and from that time Bowyer began to notice him, and encouraged his reading. Some compositions in English poetry, written at sixteen, and not without a touch of genius, give evidence of the influence which Bowles, whose poems, now forgotten, but then in vogue, had over his mind at this time. Before he left school his constitutional delicacy of frame, increased by imprudent bathing in the New River, began to give him serious discomfort.

In February, 1791, he was entered at Jesus College, Cambridge. A school-fellow who followed him to the university has described in glowing terms evenings in his rooms, "when Æschylus, and Plato, and Thucydides were pushed aside, with a pile of lexicons and the like, to discuss the pamphlets of the day. Ever and anon a pamphlet issued from the pen of Burke. There

was no need of having the book before us;—Coleridge had read it in the morning, and in the evening he would repeat whole pages verbatim."

Freind, a fellow of Jesus, accused of sedition and Unitarianism, was at this time tried and expelled from Cambridge. Coleridge had imbibed his sentiments, and joined the ranks of his partisans. He grew discontented with university life, and, pressed by debt, in a moment of spleen enlisted as a soldier. One of the officers of the dragoon regiment, finding a Latin sentence inscribed on a wall, discovered the condition of the very awkward recruit. Shortly afterward a Cambridge friend recognized him, and informed some members of his family, who with difficulty procured his discharge. He returned for a short time to Cambridge, but quitted the university without a degree in 1794. In the same year he visited Oxford, and made the acquaintance of Southey, who continued through life, in spite of Coleridge's many misunderstandings, his firm friend and most devoted admirer. The French Revolution had stirred the mind of Southey to its depths. He received with rapture his new friend's scheme of Pantisocracy. On the banks of the Susquehanna was to be founded a brotherly community, where selfishness was to be extinguished, and the virtues were to reign supreme. No funds were forthcoming, and in 1795, to the chagrin of Coleridge, the scheme was dropped. In October of the same year, Coleridge was married to Sarah Fricker, and took up his residence at Clevedon on the Bristol Channel. A few weeks afterwards Southey married a sister of Mrs. Coleridge, and on the same day quitted England for Portugal.

The cares of matrimony induced Coleridge to commence lectures. The Bristol public did not encourage his efforts on politics and religion. Coleridge embodied these in his first prose publication, *Conciones ad Populum*. The book contained much invective against Pitt, and in after life he declared that with this exception, and a few pages involving philosophical tenets which he afterward rejected, there was little or nothing he desired to retract. In the course of a summer excursion at this period, he met for the first time the brother poet with whose name his own will be forever associated. Wordsworth and his sister had established themselves at Racedown in Dorsetshire,—a retired spot,—and it was here the friends first met. There are few things in literary history more remarkable than this meeting. He and his sister soon removed to Coleridge's neighborhood, and in the most delightful and unrestrained intercourse the friends spent many happy days. It was the delight of each one to communicate to the other the productions of their minds, and the creative faculty of both poets was now at its best. One evening, on the Quantock Hills, *The Ancient Mariner* first took shape. Coleridge was anxious to embody a dream of a friend, and the suggestion of the shooting of the albatross came from Wordsworth. A joint volume was planned. The poetry of common life was to be the work of Wordsworth, while Coleridge was to indulge in romance. From this sprang the *Lyrical Ballads*, and after much cogitation the book was published by the amiable but gossiping bookseller at Bristol, Cottle, to whose reminiscences, often indulging too much in detail, we owe the account of this remarkable time. Coleridge projected a periodical called *The Watchman*, and undertook a journey, well described in the *Biographical Literaria*, to enlist subscribers. *The Watchman* had a brief life of two months, and at this time, in the year 1796, the *Juvenile Poems*, for which Cottle, always ready to help his literary friends, gave thirty guineas, appeared. The volume met with success, but at this time

Coleridge began to think of becoming a Unitarian preacher, and abandoning literature forever. In 1798 an annuity, granted him by the brothers Wedgwood, led him to alter his scheme of life. For many years he had desired to see the Continent, and in September of the same year—the year in which the *Lyrical Ballads* appeared—in company with Wordsworth and his sister, he left England for Hamburg.

A new period in Coleridge's life now began. He soon left the Wordsworths to attend lectures at Göttingen. A great intellectual movement had begun in Germany. Coleridge was soon in the full whirl of excitement. He learnt much from Blumenbach and Eichhorn, and took interest in all that was going on around him. During his stay of fourteen months in Germany, he made himself master of the language to such purpose that the translation of *Wallenstein*—his first piece of literary work after his return to England—was actually accomplished in six weeks. It was published in 1800, and, although it failed to make any impression on the general public, it became at once prized by Scott and others as it deserved. It is matter for regret that a request to Coleridge that he should undertake to translate *Faust* never received serious attention from him. During the first two years of this century Coleridge wrote many papers for the *Morning Post*. He had vehemently opposed Pitt's policy, but a change came over the spirit of his mind, and he found himself separated from Fox on the question of a struggle with Napoleon. Much has been written of this political attitude, but there is no real reason to doubt his own account of the matter. Like the first Lord Minto, Mr. Windham, and many other Whigs, he felt that all questions of domestic policy must at a time of European peril be postponed. From this time, however, his value for the ordered liberty of constitutional government increased; and though never exactly to be found among the ranks of old-fashioned Constitutionalists, during the remainder of his life he kept steadily in view the principles which received their full exposition in his well-known work on *Church and State*. In the year 1801 Coleridge left London for the Lakes. His home was for a time with Southey. A temporary estrangement had entirely been forgotten, and Southey, it should be said, for many years extended to Coleridge's wife and family the shelter and care of true friendship.

For fifteen years the record of Coleridge's life is a miserable history. He sank under the dominion of opium. The *Ode to Dejection* and the poem of *Youth and Age* are sad evidences of the utter prostration of spirit, which was his terrible penalty for many a year. Few things are so sad to read as the letters in which he details the consequences of his transgression. He was occasionally seen in London during the first years of this century, and wherever he appeared he was the delight of admiring circles. A visit to Malta in 1804, when for a short time he acted as secretary to the governor, and a brief stay at Rome in the following year, were the chief events of what may be called the opium period. In 1809 he published *The Friend*, and during that and the two following years he lectured on Shakespeare and education. The tragedy of *Remorse* was produced in 1813, and met with considerable success. Three years after this, the evil habit against which he had struggled bravely but ineffectually, determined him to enter the family of Mr. Gillman, who lived at Highgate. The letter in which he discloses his misery to this kind and thoughtful man gives a real insight into his character. Under kind and judicious treatment the hour of mastery at last arrived. The shore was reached, but the vessel had been miserably shattered in its passage through the rocks. He hardly, for the rest

of his life, ever left his home at Highgate. During his residence there, *Christabel*, written many years before, and known to a favored few, was first published. He read widely and wisely, in poetry, philosophy, and divinity. In 1816 and the following year, he gave his *Lay Sermons* to the world. The *Biographia Literaria* and a revised edition of *The Friend* soon followed. Seven years afterward his maturest and best prose work—*The Aids to Reflection*—first appeared. His last publication, in 1830, was the work on *Church and State*. In 1833 he appeared at the meeting of the British Association at Cambridge, and in the following year he passed away, and was buried in the churchyard close to the house of Mr. Gillman, where he had enjoyed every consolation which friendship and love could render. Coleridge died in the communion of the Church of England, of whose polity and teaching he had been for many years a loving admirer. An interesting letter to his god-child, written twelve days before his death, sums up his spiritual experience in a most touching form.

As a poet Coleridge's own place is safe. His niche in the great gallery of English poets is secure. Of no one can it be more emphatically said that he was "of imagination all compact." His peculiar touch of melancholy tenderness may prevent his attaining a high place in popular estimation. He does not possess the fiery pulse and humaneness of Burns, but the exquisite perfection of his meter and the subtle alliance of his thought and expression must always secure for him the warmest admiration of true lovers of poetic art.

COLERIDGE, SARA, was the fourth child and only daughter of Samuel Taylor Coleridge and his wife, Sarah Fricker, of Bristol. She was born December 22, 1802, at Greta Hall, Keswick, the residence of her parents, where they were shortly afterward joined by Southey and his wife, who was Mrs. Coleridge's sister, and by Mrs. Lovell, a third sister, and widow of the young Quaker poet, Robert Lovell.

In 1822, Sarah Coleridge published a translation in three large volumes of Dobrizhoffer's *Account of the Abipones*, undertaken in connection with Southey's *Tale of Paraguay*, which had been suggested to him by Dobrizhoffer's volumes; and Southey alludes to his niece, the translator (canto iii. stanza 16), where he speaks of the pleasure the old missionary would have felt if

" . . . he could in Merlin's glass have seen
By whom his tones to speak our tongue were taught."

In 1825 her second work appeared, a translation from the mediæval French, in two volumes, called *The Right Joyous and Pleasant History of the Feats, Jests, and Prowesses of the Chevalier Bayard, the Good Knight without Fear and without Reproach: By the Loyal Servant*.

In September, 1829, at Crosthwaite Church, Keswick, after an engagement of seven year's duration, Sara Coleridge was married to her cousin, Henry Nelson Coleridge, then a Chancery barrister in London. In 1834 Mrs. Coleridge published her *Pretty Lessons in Verse for Good Children; with some Lessons in Latin in Easy Rhyme*. These were originally written for the instruction of her own children. In 1837, the Coleridges removed to Chester Place, Regent's Park; and in the same year appeared *Phantasmion, a Fairy Tale*, Sara Coleridge's longest original work.

In 1843, Mr. Henry Coleridge died, leaving to his widow the unfinished task of editing her father's works. To these she added some compositions of her own. Sara Coleridge died at Chester Place, May 3, 1852, and was buried by the side of her father, mother, and husband, in Highgate churchyard.

COLET, JOHN, dean of St. Paul's, the eldest son of Sir Henry Colet, was born at London in 1466.

In 1502 he became prebendary of Sarum, in 1505 prebendary of St. Paul's, and immediately afterward dean of that cathedral, having previously taken the degree of doctor of divinity. He was no sooner raised to this dignity than he introduced the practice of preaching and expounding the Scriptures; and he soon afterward established a perpetual divinity lecture on three days in each week, in St. Paul's Church,—an institution which helped to pave the way for the Reformation. About the year 1508 Dean Colet formed his plan for the foundation of St. Paul's school, which he completed in 1512, and endowed with estates of an annual value of £122 and upward. Dean Colet, though in communion with the Church of Rome, disapproved of auricular confession, of the celibacy of priests, and other tenets and ceremonies which have since been rejected by all Protestants.

COLET, LOUISE REVOIL (1808–1876), French poetess and novelist, belonged to a Provençal family, and was born at Aix. Madame Colet seems to have been a woman of some literary talent, wanting altogether in the quality of self-respect and the power of self-control.

COLIC. By this term is generally understood an attack of pain in the abdomen, usually seated in the neighborhood of the navel, of spasmodic character, and attended for the most part with constipation of the bowels. Various forms of this complaint are described by medical writers. The most important are simple or flatulent colic and lead colic. The former of these commonly arises from the presence in the alimentary canal of some indigestible matter, which not only excites spasmodic contraction of the muscular coats of the intestines, but also, by beginning to undergo decomposition, gives rise to the presence of gases, which painfully distend the bowels and increase the patient's suffering. The pain of colic is relieved by pressure over the abdomen, and there is no attendant fever—points which are of importance in distinguishing it from inflammation.

Attacks of this form of colic may occur in connection with a variety of causes other than that above mentioned, *e.g.*, from accumulations of feculent matter in the intestines in the case of those who suffer from habitual constipation; also as an accompaniment of nervous and hysterical ailments, and not unfrequently as the result of exposure to cold and damp, particularly where the feet become chilled as in walking through snow. Similar attacks of colic are apt to occur in young infants, especially those who are fed artificially; and in such cases it will generally be found that the food is passing through them almost wholly undigested, and that a temporary change of diet will be necessary. The duration of an attack of simple colic is seldom long, and in general no ill consequences follow from it. It is, however, not free from risk, especially that of sudden obstruction of the bowel from twisting, or invagination of one part within another (intussusception) during the spasmodic seizure, giving rise to the terrible disease known as ileus.

Of greater importance and interest in a medical point of view is the disease known as lead colic, from its having been clearly ascertained to be due to the absorption of lead into the system.

The colic due to lead poisoning, which in its general characteristics is essentially the same as ordinary colic, is only one of a train of symptoms produced by the absorption of lead into the body. From prolonged exposure to the action of this poison, the general nutrition of the body becomes deteriorated, and serious nervous phenomena present themselves, sometimes in the form

of epilepsy and coma, but more usually as a variety of palsy. This palsy is of local character, affecting in the first instance the muscles composing the ball of the thumb, and also those muscles of the fore-arm which extend the wrist, and giving rise to the condition known as "wrist-drop," from the circumstance that when the arm is extended the hand hangs down and cannot be raised by voluntary effort. The affected muscles undergo atrophy while the paralysis continues. If the patient is removed from further exposure to the influence of the lead poison, and suitable treatment employed, complete recovery from all the ill effects may take place; but otherwise all the symptoms become aggravated, the health becomes completely ruined, and death may result.

One of the phenomena which accompany lead poisoning is the existence of a blue line along the margins of the gums where they meet the teeth. This is almost never absent, and is an important aid to the diagnosis of the disease.

The absorption of copper into the system produces a series of symptoms similar to those of lead poisoning, including a form of colic. It is of comparatively rare occurrence, being chiefly observed among workers in copper.

The treatment of colic consists in means to relieve the spasmodic pain, and in the removal, where possible, of the cause upon which it depends. The former of these indications is fulfilled by the administration of opiates (except in the case of children) and the application of warm fomentations to the abdomen. Where the attack appears to depend on accumulations of irritating matter in the alimentary canal, a brisk purgative will, in addition, be called for.

In the case of lead colic it is imperatively necessary that the patient be removed from the source of the lead poisoning. Here, too, the free evacuation of the bowels by castor oil or saline purgatives is an important part of the treatment. As an antidote to the lead absorbed into the system the administration of iodide of potassium is recommended, while for the paralysis nerve tonics, such as quinine and strychnia, and the use of galvanism, will in general yield good results. Where the patient's occupation necessitates his exposure to the constant influence of the lead poison, as in the case of color-grinders or manufacturers of white lead, the evil consequences can in great measure be averted by scrupulous attention to cleansing the body, particularly before eating, by abstention from eating in the work places, and by the habitual use of a drink slightly acidulated with sulphuric acid.

COLIGNI, GASPARD DE, admiral of France, was son of the Marshal Gaspard de Coligni and Louise de Montmorency, and was born at Chatillon-sur-Loing, the hereditary domain of his house. At twenty-two he came to court, and there contracted a friendship with Francis of Guise. In the Campaign of 1543 Coligni distinguished himself greatly, and was wounded at the sieges of Montmédy and Bains. In 1544 he served in the Italian campaign under the Duc d'Enghien, and was knighted on the field of Cerisolles. Returning to France, he took part in different military operations; and having been made colonel-general of the infantry, exhibited great capacity and intelligence as a military reformer. He was soon afterwards made admiral in room of D'Annebaut. At the battle of Renty (1554) began the quarrel between him and Francis of Guise, which was to bring such evil on both their houses, and on their native land; and the enmity was increased tenfold in 1556 by the rupture, at the instance of Guise, of the Treaty of Vauxcelles. In 1557 he was intrusted with the defense of Saint Quentin. In the

siege he displayed great courage, resolution, and strength of character; but the place was taken and he was imprisoned in the stronghold of L'Ecluse. On payment of a ransom of 50,000 crowns he recovered his liberty. But he had by this time become a Huguenot, through the influence of his brother Dandelot; and he busied himself secretly with protecting his co-religionists, a colony of whom he sent to Brazil, whence they were afterward expelled by the Portuguese. On the death of Henry II. he placed himself, with Louis, prince of Condé, in the front of his sect, and demanded religious toleration and certain other reforms.

In 1560, at the Assembly of Notables at Fontainebleau, the hostility between Coligni and Francis of Guise broke violently forth; the death of Francis II. and the policy of Catharine precipitated matters to an issue; the civil war began; and the battle of Dreux (1562), clearing the ground of the Constable Montmorency and the prince of Condé, set the two great rivals at the head of their respective parties. In 1563, however, the Pacification of Amboise was effected; Francis of Guise was assassinated; and peace was maintained for some years. The Huguenot attempt to seize on the person of Charles IX. at Monceaux, brought about a resumption of hostilities. At St. Denis (1567) Coligni defeated Montmorency; in 1569 he was defeated at Jarnac by the duke of Anjou, and repaired with the remains of his army to Cognac. There he was joined by the prince of Navarre, who was forthwith placed at the head of the Protestant party; the two laid siege to Poitiers, which was defended by Henry of Guise; but the siege was raised, and the Huguenots were routed at Moncontour (1569) with terrible slaughter. A price of 50,000 crowns was set upon the admiral's head; but the peace of St. Germain was concluded in 1570, and he returned to court. He grew rapidly in favor with Charles IX. As a means of emancipating the king from the tutelage of his mother and the faction of the Guises, the admiral proposed to him a descent on Spanish Flanders, with an army drawn from both sects, and commanded by Charles in person. The king's regard for the admiral, and the bold front of the Huguenots, alarmed the queen mother; and the massacre of St. Bartholomew was the consequence. On 22d August, 1572, Coligni was shot in the street by Maurevert, a bravo in the pay of Henry of Guise; the bullets, however, only tore a finger from his right hand and shattered his left elbow. The king visited him, but the queen mother prevented all private intercourse between them. On the 24th August, the night of the massacre, he was attacked in his house by the minions of Guise, led by a German named Behme, who slew him and cast him from a window into the courtyard at their master's feet. His body was gibbeted at Montfaucon; it was, however, carried off by his retainers, and buried at Chatillon, where it remained till 1786, when Montesquieu had it reinterred at his own estate of Maupertuis. His papers were seized and burned by the queen mother; among them, according to Brantôme, was a history of the civil war "*très-beau et très-bien fait, et digne d'estre imprimé.*"

COLIMA, the capital of the state of Colima, Mexico, is situated in a fertile and well-watered plain. It has regular streets, mostly paved, a Government house, a college, several schools and churches, and two squares, and is a place of considerable trade in linens, woollens, cotton goods, and hardware. The population exceeds 31,000. Colima was founded by Gonzalo de Sandoval in 1522, received incorporation from Philip II., and attained the rank of a city in 1824.

COLIN, ALEXANDER (1526-1612), a Flemish sculptor, was born at Mechlin, and died in 1612.

COLLAERT, HANS, a Flemish engraver, was the son of Adrian Collaert, a draughtsman and engraver. was born at Antwerp about 1545, and died about 1610.

COLLE, CHARLES (1709-1783), dramatist and songwriter, was a son of a notary, and was born at Paris. He is best remembered by his lyrics, which form an important link in the chain of style through which the *chanson*, that peculiarly French form of the song, has passed. They are frank and jovial, though often licentious, and are remarkable for wit and amiability no less than for the artistic management of the refrain and for their popular attractions. The subjects are love and wine; occasionally, however, as in the famous lyric (1756) on the capture of Port Mahon, for which the author received a pension of 600 livres, the note of patriotism is struck with no unskillful hand, while in many others Collé shows himself possessed of considerable epigrammatic force.

COLLE, RAFAELLE DEL, painter, was born at Colle, near Borgo San Sepolcro, in Tuscany, about 1490. A pupil of Raphael, whom he is held to have assisted in the Farnesina and the Vatican, Colle, after his master's death, was the assistant of his chief scholar, Giulio Romano, at Rome and afterward at Mantua. His works, which are yet to be found at Urbino, at Perugia, at Pesaro, and at Gubbio, are fine examples of the Roman school of Raphael. The best are a painting of the Almighty supported by angels, a Resurrection, and an Assumption, all preserved in churches at Borgo San Sepolcro. Colle died in 1550.

COLLEGE (*Collegium*), in Roman law signified a number of persons associated together by the possession of common functions,—a body of colleagues. In many respects, *e.g.*, in the distinction between the responsibilities and rights of the society and those of individual members thereof, the collegium was what we should now call a corporation (see CORPORATION). Collegia might exist for purposes of trade like our guilds, or for religious purposes (*e.g.*, the college of augurs, of pontifices, &c.), or for political purposes, *e.g.*, *tribunorum plebis collegia*. By the Roman law a collegium must have at least three members. The name is now usually applied to educational corporations, the most important of which are the colleges of Oxford and Cambridge. In the numerous statutes relating to colleges the colleges of Winchester and Eton are usually associated with those of Oxford and Cambridge.

These colleges are in the eye of the law eleemosynary corporations. In some of the earlier statutes of Queen Elizabeth they are spoken of as having an ecclesiastical character, but the doctrine of the common law since the Reformation has been that they are purely lay corporations, notwithstanding that most of all of their members may be persons in priest's orders. This is said to have been settled by Patrick's case (see Raymond's *Reports*).

Colleges appear to have grown out of the voluntary association of students and teachers at the university. According to some accounts these must at one time have been numerous and flourishing beyond anything we are now acquainted with. We are told, for example, of 300 halls or societies at Oxford, and 30,000 students. Into the truth of these statements, or into the causes which led to the reduction in the number of scholars, we need not now enter. In early times there seems to have been a strong desire to confine the scholars to certain licensed houses, beyond the influence of the townspeople. Men of wealth and culture, and notably the political bishops and chancellors of England, obtained charters from the Crown for the incorporation of societies of scholars, and these in time became exclusively the places of abode for students

attending the university. At the same time the corporations thus founded were not necessarily attached to the locality of the university. The early statutes of Merton College, for example, allow the residence of the college to be shifted as occasion required; and the foundations of Wolsey at Oxford and Ipswich seem to have been the same in intention. In later times the university and the colleges became co-extensive; every member of the university had to attach himself to some college or hall, and every person admitted to a college or hall was obliged to matriculate himself in the university.

The corporation consists of a head or master, fellows, and scholars. Students, not being on the foundation, residing in the college, are not considered to be members of the corporation. The governing body in all cases is the head and fellows.

It is considered essential to corporations of an ecclesiastical or educational character that they should have a visitor whose duty it is to see that the statutes of the founder are obeyed.

The fellowships, scholarships, etc., of colleges were, until a comparatively recent date, subject to various restrictions. Birth in a particular county, education at a particular school, relationship to the founder, and holy orders, are amongst the most usual of the conditions giving a preferential or conclusive claim to the emoluments. Most of these restrictions have been or are being swept away. See UNIVERSITIES.

The colleges of the English universities are large landowners.

At Oxford, in addition to the colleges, there are four or five halls, which differ from colleges, mainly in not being corporate bodies. Their property is held in trust for them by the university.

In England the colleges have through their tutors and lecturers supplied nearly all the teaching of the universities.

COLLEGE POINT, a town of Queen's county, N.Y., on Long Island Sound, ten miles east-northeast of New York city. It has direct railroad and steamboat communication with New York, of which it is practically a suburb. It contains a rubber factory and silk mill, four churches, a newspaper office, and a population of about 5,500.

COLLIER, ARTHUR, metaphysician and divine, was born at the rectory of Langford Magna, England, on 12th October, 1680. He entered at Pembroke College, Oxford, in July, 1697, and remained there till October in the following year, when he and his brother William became members of Balliol together. His father died in 1697, and as the family owned the advowson of Langford Magna, it was arranged, after some difficulties raised by Burnet, then bishop of Salisbury, that the benefice should be held by a clergyman until Arthur was old enough to be inducted. He was accordingly presented to the benefice in 1704, and continued in it till his death in 1732. Although a bold speculator in theology, his sermons intended for his parish show no traces of his peculiar notions, and he seems to have been faithful in the discharge of his duty. He was often in pecuniary difficulties, from which at last he was obliged to free himself by selling the reversion of Langford rectory to Corpus Christi College, Oxford, a misfortune which his biographer attributes to his "habits of abstruse speculation, which seem to have unfitted him for all considerations of worldly prudence." Collier's philosophical opinions took shape early in his mind. They grew out of a diligent study of the writings of Descartes and Malebranche. Norris, of Bemerton, a neighboring clergyman, also strongly influenced him by his *Essay on the Ideal World*. It is remarkable that

Collier makes no reference to Locke, nor shows the least sign of having any knowledge of his works. As early as 1703 Collier seems to have become convinced of the non-existence of an external world. There is among his MSS., under date January, 1708, an outline of an essay in three chapters on the question whether the visible world is external or not. In 1712 he wrote two essays, which are still in manuscript, one on substance and accident, and the other termed *Clavis Philosophica*. The work on which his philosophical reputation depends appeared in 1713, under the title *Clavis Universalis; or a New Inquiry after Truth, being a Demonstration of the Non-Existence or Impossibility of an External World*. It has been favorably mentioned by Reid, Stewart, and others, and was frequently referred to by the Liebnitzians.

The *Clavis* consists of two parts. After some introductory remarks, in which he explains that he will use the term "external world" in the sense of absolute, self-existent, independent matter, and fences the position he is to occupy against sundry possible misinterpretations, he attempts in the first part to prove that the visible world is not external, by showing — first, that the seeming externity of a visible object, is no proof of real externity, and second, that a visible object as such, is not external. The image of a centaur seems as much external to the mind as any object of sense; and since the difference between imagination and perception is only one of degree, God could so act upon the mind of a person imagining a centaur, that he would perceive it as vividly as any object can be seen.

COLLIER, JEREMY, a learned English nonjuring divine, born at Stow-cum-Quy, Cambridgeshire, in 1650, and was educated at Caius College, Cambridge. His first appointment was to the small rectory of Amp-ton, near Bury St. Edmunds, which, after six years, he resigned in order to proceed to London, where in 1685 he was made lecturer of Gray's Inn. The change of government at the Revolution, however, soon rendered the public exercise of his function impracticable. In the two following years he continued to harass the government by his publications; but for his boldness in granting absolution at their execution to Sir John Friend and Sir William Perkins, who had attempted the assassination of William, he was obliged to flee, and for the rest of his life continued under sentence of outlawry. When the storm had blown over he returned to London, and employed his leisure in literary works, which were less political in their tone. In 1697 appeared the first volume of his *Essays on Several Moral Subjects*, to which a second was added in 1705, and a third in 1709. It was in 1698, however, that Collier produced the book by which he is best known, and for which he has been most justly praised, the famous *Short View of the Immorality and Profaneness of the English Stage*. Its publication involved him in a lengthened controversy with Congreve, Vanbrugh, and the other wits of the day. The *Short View* was followed by a *Defense*, a *Second Defense*, and a *Farther Vindication*, and in 1703 by Mr. Collier's *Dissuasive from the Playhouse, in a Letter to a Person of Quality*. The fight lasted in all some ten years; but Collier had right on his side, and triumphed. The reformation of the English stage may be said to date from the publication of the *Short View*. From 1701 to 1721 Collier was employed in literary work. His last work was a volume of *Practical Discourses*, a series of practical homiletical and hortatory addresses directed to the correction of current evils, published in 1725. He died April 26, 1726.

COLLINGWOOD, CUTHBERT, the first Baron Collingwood, a celebrated naval commander, was born at

Newcastle-upon-Tyne, on the 26th of September, 1750. He was early sent to school, and when only eleven years of age he was put on board the "Shannon," then under the command of Captain (afterward Admiral) Brathwaite, a relative of his own, to whose care and attention he was in a great measure indebted for that nautical knowledge which shone forth so conspicuously in his subsequent career. After serving under Captain Brathwaite for some years, and also under Admiral Roddam, he went, in 1774, to Boston with Admiral Graves, who in the year following presented him with a lieutenancy. In 1779 he was made commander of the "Badger," and shortly afterwards post-captain of the "Hinchinbroke," a small frigate. In the spring of 1780 that vessel, under the command of Nelson, was employed upon an expedition to the Spanish Main, where it was proposed to pass into the Pacific by navigating boats along the River San Juan and the Lakes Nicaragua and Leon. The attempt failed, and most of those engaged in it became victims to the deadly influence of the climate. Nelson was promoted to a larger vessel, and Collingwood succeeded him in the command. It is a fact worthy of record that the latter succeeded the former very frequently from the time when they first became acquainted, until the star of Nelson set at Trafalgar—giving place to that of Collingwood, less brilliant certainly, but not less steady in its luster.

After commanding in another small frigate, Collingwood was promoted to the "Sampson," of sixty-four guns, and in 1783 he was appointed to the "Mediator," destined for the West Indies, where, with Nelson, who had a command on that station, he remained till the end of 1786, when he returned to England, where, with the exception of a voyage to the West Indies, he remained until 1793, in which year he was appointed captain of the "Prince," the flag-ship of Rear-Admiral Bowyer.

As captain of the "Barfleur," Collingwood was present at the celebrated naval engagement which was fought on the 1st of June, 1794, and on that occasion he displayed equal judgment and courage. In the beginning of 1799 Collingwood was raised to the rank of vice-admiral, and hoisting his flag in the "Triumph," he joined the Channel Fleet, with which he proceeded to the Mediterranean, where the principal naval forces of France and Spain were assembled. Collingwood continued actively employed in watching the enemy, until the peace of Amiens restored him once more to the bosom of his family.

The domestic repose, however, which he so highly relished, was cut short by the recommencement of hostilities with France, and in the spring of 1803 he quitted the home to which he was never again to return. The duty upon which he was employed was that of watching the French fleet off Brest, and in the discharge of it he displayed the most unwearied vigilance. Nearly two years were spent in this employment; but Napoleon had at length matured his plans and equipped his armament, and the grand struggle which was to decide the fate of Europe and the dominion of the sea was close at hand. The enemy's fleet having sailed from Toulon, Admiral Collingwood was appointed to the command of a squadron, with orders to pursue them. The combined fleets of France and Spain, after spreading terror throughout the West Indies, returned to Cadiz. On their way thither they bore down upon Admiral Collingwood, who had only three vessels with him; but he succeeded in eluding the pursuit, although chased by sixteen ships of the line. Ere one-half of the enemy had entered the harbor he drew up before it and resumed the blockade, at the same time employing an ingenious artifice to conceal the inferiority of his force. But the combined fleet was at last compelled to quit Cadiz; and the battle of Trafalgar immediately followed. The brilliant conduct of Admiral Collingwood upon this occa-

sion has been much and justly applauded. The French admiral drew up his fleet in the form of a crescent, and in a double line, every alternate ship being about a cable's length to windward of her second, both ahead and astern. The British fleet bore down upon this formidable and skillfully arranged armament in two separate lines, the one led by Nelson in the "Victory," and the other by Collingwood in the "Royal Sovereign." The latter vessel was the swifter sailer, and having shot considerably ahead of the rest of the fleet, was the first engaged. "See," said Nelson, pointing to the "Royal Sovereign" as she penetrated the center of the enemy's line, "see how that noble fellow Collingwood carries his ship into action!" Probably it was at the same instant that Collingwood, as if in response to the observation of his great commander, remarked to his captain, "What would Nelson give to be here?" The consummate valor and skill evinced by Collingwood had a powerful moral influence upon both fleets. It was with the Spanish admiral's ship that the "Royal Sovereign" closed; and with such rapidity and precision did she pour in her broad-sides upon the "Santa Anna," that the latter was on the eve of striking in the midst of thirty-three sail of the line, and almost before another British ship had fired a gun. Several other vessels, however, seeing the imminent peril of the Spanish flagship, came to her assistance, and hemmed in the "Royal Sovereign" on all sides; but the latter, after suffering severely, was relieved by the arrival of the rest of the British squadron; and not long afterward the "Santa Anna" struck her colors. The result of the battle of Trafalgar, and the expense at which it was purchased, are well known. On the death of Nelson, Collingwood assumed the supreme command; and by his skill and judgment greatly contributed to the preservation of the British ships, as well as of those which were captured from the enemy. He was raised to the peerage, as Baron Collingwood of Coldburne and Heathpool, and received the thanks of both Houses of Parliament, with a pension of £2,000 per annum.

From this period until the death of Lord Collingwood no great naval action was fought; but he was much occupied in important political transactions, in which he displayed remarkable tact and judgment. Being appointed to the command of the Mediterranean fleet, he continued to cruise about, keeping a watchful eye upon the movements of the enemy. His health, however, which had begun to decline previous to the action of Trafalgar in 1805, seemed entirely to give way, and he repeatedly requested Government to be relieved of his command, that he might return home; but he was urgently requested to remain, on the ground that his country could not dispense with his services. This conduct has been regarded as harsh; but the good sense and political sagacity which he displayed afford some palliation of the conduct of the Government; and the high estimation in which he was held is proved by the circumstance that among the many able admirals, equal in rank and duration of service, none stood so prominently forward as to command the confidence of ministers and of the country to the same extent as he did. After many fruitless attempts to induce the enemy to put to sea, as well as to fall in with them when they had done so (which circumstance materially contributed to hasten his death), he expired on board the "Ville de Paris," then lying off Port Mahon, on the 7th of March, 1810.

COLLINS, ANTHONY, an English writer on theology and philosophy, born at Heston, near Hounslow in Middlesex, on the 21st June, 1676, was the son of a country gentleman of good fortune. After being educated at Eton, and at King's College, Cambridge, he was entered at the Middle Temple, but he did not pur-

sue the profession of the law. The most interesting episode of his life was his intimacy with Locke, who in his letters speaks of him with the most affectionate regard. During a visit to Holland, made, it is said, in order to escape the storm raised by the *Discourse of Freethinking*, he also made the acquaintance of Leclerc and several other Dutch scholars. In 1715 he settled in Essex; and he was in that country appointed to the offices of justice of the peace and deputy-lieutenant, which he had before held in Middlesex. His open expression of his opinions, with all its freedom, was, as he owns, carefully kept "within the bounds of doing himself no harm;" he always published anonymously, though the authorship of his books never appears to have been long a secret; and the independence of his position, together with his pure and genial character, saved him from all personal annoyance. The only attack reported to have been made upon him, otherwise than by means of the press, was the fruitless petition presented by Whiston, while smarting under his criticism, praying that he might be removed from the commission of the peace. Collins died at his house in Harley Street, London, on December 13, 1729, at the age of fifty-three.

The first work of note published by Collins was his *Essay Concerning the Use of Reason in Propositions, the Evidence whereof Depends on Human Testimony* (1707).

Six years later appeared his most famous work, *A Discourse of Freethinking, Occasioned by the Rise and Growth of a Sect called Freethinkers* (1713).

In philosophy, Collins takes a foremost place as a defender of Necessitarianism. His brief *Inquiry Concerning Human Liberty* (1715) gives, in a remarkably clear and concise form, all the important arguments in favor of his theory, with able and suggestive replies to the chief objections that have been urged against it. Little, in fact, of moment has been added by modern determinists. One of his arguments, however, calls for special criticism—his assertion that it is self-evident that nothing that has a beginning can be without a cause, is an unwarranted assumption of the very point at issue. Collins's position was attacked in an elaborate treatise by Samuel Clarke, in whose system the freedom of the will is made essential to religion and morality. During Clarke's lifetime, fearing, perhaps (as has been suggested), to be branded as an enemy of religion and morality, Collins gave no reply, but in 1729 he published an answer, entitled *Liberty and Necessity*.

COLLINS, MORTIMER (1827–1876), novelist and writer of lyrics, was born at Plymouth, and was educated at a private school. After some years spent in tuition and some contributions in verse to the Bristol newspapers, he repaired to London, and devoted himself to journalism in the Conservative interest. In 1855 he published a volume of verse; and 1865 appeared his first story, *Who is the Heir?* A second volume of lyrics, *The Inn of Strange Meetings*, was issued in 1871; and in 1872 he produced his longest and best-sustained poem, *The British Birds, a Communication from the Ghost of Aristophanes*. He wrote profusely for journals and magazines—the *Owl*, the *Globe*, *Punch*, *Temple Bar*, *Belgravia*, the *World*, etc.—and produced, besides, several novels, the most readable of which, perhaps, is *Sweet Anne Page* (1868). As novels merely, these works are not greatly to be commended; as the work of a clever man of pronounced opinions, they are often interesting enough. Their author's great claim to remembrance, however, is based upon his lyrics; some of these, in their light grace, their sparkling wit, their airy philosophy, are equal to anything of their kind in modern English.

COLLINS, WILLIAM, who divides with Gray the glory of being the greatest English lyricist of the eighteenth century, was born on the 25th of December, 1721, at Chichester, of which city his father, a rich hatter, was the mayor. After some childish studies in his native town, he was sent, in January, 1733, to Winchester College, where Whitehead and Joseph Warton were his schoolfellows. When he had been nine months at the school, Pope paid Winchester a visit and proposed a subject for a prize poem; it is legitimate matter or fancy to suppose that the lofty forehead, the brisk dark eyes, and gracious oval of the childish face, as we know it in the only portrait existing of Collins, did not escape the great man's notice, then not a little occupied with the composition of the *Essay on Man*. In 1734 it is supposed that the young poet published his verses, on *The Royal Nuptials*, of which, however, no copy has come down to us; another poem, probably satiric, called *The Battle of the Schoolbooks*, was written about this time, and has also been lost. Fired by his poetic fellows to further feats in verse, Collins produced, in his seventeenth year, those *Persian Eclogues* which were the only writings of his that were valued by the world during his own lifetime. They were not printed for some years, and meanwhile Collins sent, in January and October, 1739, some verses to the *Gentleman's Magazine*, which attracted the notice and admiration of Johnson, then still young and uninfluential. In March, 1740, he was admitted a commoner of Queen's College, Oxford, but did not go up to Oxford until July, 1741, when he entered Magdalen College. At Oxford he continued his affectionate intimacy with the Wartons, and gained the friendship of Gilbert White. Early in 1742 the *Persian Eclogues* appeared in London. They were four in number, and formed a modest pamphlet of not more than 300 lines in all. Those pieces may be compared with Victor Hugo's *Les Orientales*, to which, of course, they are greatly inferior. Considered with regard to the time at which they were produced, they are more than meritorious, even brilliant, and one at least—the second—can be read with enjoyment at the present day. The rest, perhaps, will be found somewhat artificial and effete.

In November, 1743, Collins was made bachelor of arts, and a few days after taking his degree published his second work, an *Epistle to Sir Thomas Hanmer*. This poem, written in heroic couplets, shows a great advance in individuality, and resembles, in its habit of impersonifying qualities of the mind, the riper lyrics of its author. For the rest, it is an enthusiastic review of poetry, culminating in a laudation of Shakespeare. It is supposed that he left Oxford abruptly in the summer of 1744 to attend his mother's death-bed, and did not return. His indolence, which had been no less marked at the university than his genius, combined with a fatal irresolution to make it extremely difficult to choose for him a path in life. The army and the church were successively suggested and rejected; and he finally arrived in London, bent on enjoying a small property as an independent man about town. He made the acquaintance of Johnson and others, and was urged by those friends to undertake various important writings—a *History of the Revival of Learning*, several tragedies, and a version of Aristotle's *Poetics*, among others—all of which he commenced and lacked force of will to continue. He soon squandered his means, plunged, with most disastrous effects, into profligate excesses, and sowed the seed of his untimely misfortune. It was at this time, however, that he composed his matchless odes, which appeared on the 20th of December, 1746, dated 1747. The original project was to have combined them with the odes of Joseph Warton, but the latter, now forgotten, proved at that time to be the

more marketable article. Collins' little volume fell dead from the press, but it won him the admiration and friendship of Thomson, with whom, until the death of the latter in 1748, he lived on terms of affectionate intimacy. The *Odes*, in the volume of that name, were twelve in number. In 1749 Collins was raised beyond the fear of poverty by the death of his uncle; and he left London to settle in his native city. He had hardly begun to taste the sweets of a life devoted to literature and quiet, before the weakness of his will began to develop in the direction of insanity, and he hurried abroad to attempt to dispel the gathering gloom by travel. In the interval he had published two short pieces of consummate grace and beauty—the *Elegy on Thomson*, in 1749, and the *Dirge in Cymbeline*, later in the same year. In the beginning of 1750 he composed the *Ode on the Popular Superstitions of the Highlands*, which was dedicated to the author of *Douglas*, and not printed till long after the death of Collins, and an *Ode on the Music of the Grecian Theater*, which no longer exists, and in which our literature probably has sustained a severe loss. With this poem his literary career closes, although he lingered in great misery for nearly nine years. From Gilbert White we learn that his madness was occasionally violent, and that he was confined for a time in an asylum at Oxford. But for the most part he resided at Chichester, suffering from extreme debility of body when the mind was clear, and incapable of any regular occupation. Music affected him in a singular manner, and it is recorded that he was wont to slip out into the cathedral cloisters during the services, and moan and howl in horrible accordance with the choir. In this miserable condition he passed out of sight of all his friends, and in 1756 it was supposed, even by Johnson, that he was dead; in point of fact, however, his sufferings did not cease until the 12th of June, 1759. No journal or magazine recorded the death of the forgotten poet, though Goldsmith, only two months before, had commenced the laudation which was soon to become universal.

COLLINS, WILLIAM, painter, was the son of an Irish picture dealer and man of letters, the author of a *Life of George Morland*, and was born in London. He studied under Etty in 1807, and in 1809 exhibited his first pictures of repute—*Boys at Breakfast*, and *Boys with a Bird's Nest*. In 1815 he was made associate of the Royal Academy, and was elected R.A. in 1820. For the next sixteen years he was a constant exhibitor; his fishermen shrimp-catchers, boats and nets, stretches of coast and sand, and, above all, his rustic children were universally popular. Then, however, he went abroad on the advice of Wilkie, and for two years (1837–1838) studied the life, manners, and scenery of Italy. In 1839 he exhibited the first fruits of this journey; and in 1840, in which year he was appointed librarian to the Academy, he made his first appearance as a painter of history. In 1842 he returned to his early manner and choice of subject, and during the last years of life enjoyed greater popularity than ever. As a painter Collins is entitled to high praise. He was a good colorist and an excellent draughtsman; he was also exceedingly conscientious, and an ardent lover and student of nature.

COLLODION, a colorless, viscid fluid, made by dissolving gun-cotton and the other varieties of pyroxylin, or cellulotritrin, in a mixture of alcohol and ether. It was discovered in 1848 by Maynard in Boston. The quality of collodion differs according to the proportions of alcohol and ether and the nature of the pyroxylin it contains. In surgery collodion is used in its usual condition, or combined with elastic and other substances, for the protection of inflamed surfaces, as in erysipelas

and smallpox. When poured upon the skin, it forms a thin film which contracts as it dries. *Flexible Collodion*, which, as it does not crack in drying, is preferable for surgical purposes to the ordinary preparation, is made from collodion 6 oz., Canada balsam 120 grs., castor-oil 1 fluid drachm. *Vesicating or Blistering Collodion* contains cantharidin as one of its constituents. The styptic colloid of Richardson is a strong solution of tannin in gun-cotton collodion. SEE PHOTOGRAPHY.

COLLOT D'HERBOIS, JEAN MARIE (1750–1796), a prominent actor in the French Revolution, was a Parisian actor. After figuring for some years at the principal provincial theatres of France and Holland, he became director of the playhouse at Geneva. He had from the first a share in the revolutionary tumult; but it was not until 1791 that he became a figure of importance. Then, however, by the publication of *L'Almanach du Père Gérard*, a tract designed to set forth, in homely style, the advantages of a constitutional government, he suddenly acquired great popularity. His renown was soon increased by his active interference on behalf of the Swiss of the Château-Vieux Regiment, condemned to the galleys for mutiny at Nancy. His efforts resulted in their liberation; he went himself to Brest in search of them; and a civic feast was decreed on his behalf and theirs, which gave occasion for one of the few poems published during his life by André Chénier. He next endeavored to obtain the office of minister of justice, but was disappointed. The 10th of August, however, placed him in the municipality of Paris. There he attached himself to Billaud-Varenne, and had with him a large share in bringing about the September Massacres. Having been elected a deputy for Paris to the Convention, he was among the first to demand the abolition of royalty; and from Nice, whither he had gone on an embassy, he voted the death of Louis XVI. In the struggle between the Mountain and the Girondists he displayed great energy; and after the *coup d'état* of May 31 (1793), he made himself conspicuous by his pitiless pursuit of the defeated party. In June he was made president of the convention; and in September, with Billaud-Varenne, he was admitted to the Committee of Public Safety. He voted loudly and persistently for all the bloodiest and sternest measures. In November, after the Lyonesse insurrection, he was sent with Fouché to punish the rebellious city, where, it is said, he had once been hissed as an actor. This he effected by putting about 1,500 persons to death in one day. In May, 1794, an attempt was made to assassinate Collot; but it only increased his popularity. In the struggle for mastery between Robespierre and Tallien, Collot took the part of the latter. In spite, however, of his fierce attack on Robespierre he was expelled from the Committee of Public Safety, and was denounced in form by Lecointre. He defended himself, and was acquitted, but only to be denounced anew by Merlin, and to be condemned, with Billaud-Varenne, to transportation to Cayenne, where he died of fever a few months after his arrival.

COLMAN, GEORGE (1733–1794), essayist and dramatist, usually called the Elder, and sometimes George the First, to distinguish him from his son, was born at Florence, where his father was stationed as resident at the court of the grand duke of Tuscany. After a preliminary course of study at a private academy in Marylebone, he was sent to Westminster School, which he left in due course for Christ Church, Oxford. Here he made the acquaintance of Bonnel Thornton, the parodist, and together they founded *The Connoisseur* (1754–1756), a periodical which reached its 140th number, and which, Johnson said, "wanted weight." In 1758 he took the degree of Master of Arts, came to London soon afterwards, was entered at Lincoln's Inn,

and was duly called to the bar; and in 1760 he produced his first play, *Polly Honeycomb*, which met with great success. In 1761 he brought out *The Jealous Wife*, a comedy rich in borrowed excellences; in 1764 the death of Lord Bath placed him in possession of an annuity; in 1765 appeared his brilliant metrical translation of the plays of Terence; and in 1766 he produced *The Clandestine Marriage*, jointly with Garrick, whose Lord Ogleby was one of his finest impersonations. In 1767 he succeeded to a second annuity, on the death of General Pulteney, purchased a fourth share in Covent Garden Theater, and was appointed acting manager. In 1768 he was elected into the famous Literary Club, then nominally consisting of twelve members; in 1774, after seven years of managership, he sold his share in the great playhouse to Leake; and in 1777 he purchased of Foote, then broken in health and spirits, and near his end, the Little Theater in the Haymarket. In 1778 he published an edition of Beaumont and Fletcher; and in 1783 appeared his translation of Horace's Epistle *De Arte Poetica*, with notes and a commentary. He was attacked with palsy in 1785; in 1789 his brain became affected, and he lapsed gradually into idiocy.

COLMAN, GEORGE (1762-1836), the Younger, son of the preceding, passed from Westminster School to Christ Church, Oxford, and King's College, Aberdeen, and was finally entered as a student of law at the Temple, London. While at Aberdeen he published a poem in honor of Charles James Fox, called *The Man of the People*; and in 1782 he produced at his father's playhouse in the Haymarket, his first play, *The Female Dramatists*, for which *Roderick Random* supplied the materials. It was unanimously condemned, but his next attempt, *Two to One*, was entirely successful and the young Templar's vocation was decided on. The failing health of the elder Colman obliging him to relinquish the management of the Haymarket theater, the younger George succeeded him, at a yearly salary of £600. On the death of the father the patent was continued to the son; but difficulties arose in his way, lawsuits and pamphlets accumulated round him, and he was forced to take sanctuary within the Rules of the King's Bench. Here he resided for many years. Released at last through the kindness of George IV., who had appointed him exoner of the Yeomen of the Guard, a dignity disposed of by Colman to the highest bidder, he was made examiner of plays by the duke of Montrose, then lord chamberlain. This office, to the disgust of all contemporary dramatists, to whose MSS. he was as illiberal as severe, he held till his death. Colman's comedies, which have never been collected, are a curious mixture of genuine comic force and platitudinous sentimentality. Several of them are yet acted; but their popularity is rather to be attributed to the humor of the actors who adopt them as vehicles for display than to any intrinsic vitality. The best of them are *John Bull* (1805), for which the author received the largest sum of money that had till then been paid for any single play, *The Poor Gentleman* and *The Heir-at-Law*. Colman, whose conversational powers were remarkable, as Byron has recorded, was also the author of a great deal of so-called humorous poetry (mostly coarse, though much of it was popular).

COLMAR, or KOLMAR, till 1870 the chief town of the department of Haut Rhin in France, but now of the district of Upper Alsace, in the German empire, is situated on the Lauch and the Fecht, tributaries of the Ill. It communicates by a canal with the Rhine, and has a station on the railway from Basel to Strasburg, being about forty miles S.S.W. of the latter city. It is the seat of the administrative offices for Upper Alsace, an imperial court of appeal for Alsace-Lorraine, a commercial court, an imperial lyceum, a Protestant normal

college, a literary, an agricultural, and a natural history society. The last, founded in 1861, maintains a valuable museum in the old convent of Unterlinden, and publishes valuable contributions to local science; the town library contains 50,000 volumes, and the archives of Upper Alsace reach back to the seventh century. Colmar grew up round a royal residence called Columbaria, which is first mentioned in the eighth century. It obtained a charter of incorporation in 1226, and was afterward made a free imperial city by the Emperor Frederick II. It was taken after a six weeks' siege by Adolphus of Nassau in 1293, invested by Duke Otto of Austria in 1330, occupied by Duke Rudolf in 1358, seized by the Swedes in 1632, and finally dismantled by the French after the siege of 1673.

COLNE, a market town of England, in the county of Lancaster, twenty-six miles north of Manchester, on a small affluent of the Calder, near the Liverpool and Leeds Canal, with a population of 8,000.

COLOCYNTH, COLOQUINTIDA, or BITTER APPLE, *Citrullus* or *Cucumis Colocynthis*, a plant of the natural order *Cucurbitaceæ* or Gourds. The flowers are unisexual; the male blossoms have five stamens and sinuous anthers, the female have reniform stigmas, and a three to six celled ovary. The fruit is round, and about the size of an orange; it has a thick yellowish rind, and a light, spongy, and very bitter pulp, which furnishes the colocynth of druggists. The seeds, which number from 200 to 300, and are disposed in vertical rows on the three parietal placentæ of the fruit, are flat and ovoid, and dark-brown; they are used as food by some of the tribes of the Sahara, and a coarse oil may be expressed from them. The commercial colocynth consists of the peeled and dried fruits, which are imported from Aleppo, Smyrna, Mogador, Spain, and other localities. In the preparation of the drug, the seeds are always removed from the pulp. Colocynth is a drastic purgative, and in large doses the powdered drug or its decoction has an inflammatory action on the intestines, and may produce fatal effects. It is administered in combination with aloes, scammony, cardamoms, and potassium sulphate, also with henbane. Colocynth was known to the ancient Greek, Roman, and Arabic physicians.

COLOGNA, a town of Italy, in the province of Verona, twenty miles southeast of the city of that name on the Frasana canal. It has a cathedral, and carries on an extensive trade in hemp, silk, wine, grain, and almonds. Population, 7,000.

COLOGNE, German KÖLN or CÖLN, the chief city of Rhenish Prussia, and a fortress of the first rank, capital of a government of the same name, is situated in the form of a half circle on the left bank of the Rhine, forty-five miles N.N.W. of Coblenz. It is connected with the suburb of Deutz, on the opposite side of the Rhine, by a bridge of boats nearly 1,400 feet long, and by a handsome iron bridge which serves both for railway and street traffic. Although when viewed from a distance the city has a picturesque aspect, it is very irregularly built, and the older streets are narrow, crooked, and dirty. The cathedral or Dom, the principal edifice and chief object of interest in Cologne, is one of the finest and purest monuments of Gothic architecture in Europe. It stands on the site of a cathedral commenced about the beginning of the ninth century by Hildebold, metropolitan of Cologne, and finished under Willibert in 873. This structure was ruined by the Normans, was rebuilt, but in 1248 was almost wholly destroyed by fire. The foundation of the present cathedral was then laid by Conrad of Hochstaden. The original plan of the building has been attributed to Gerhard von Rile. In 1322 the new choir was consecrated, and the bones

of the three kings were removed to it from the place they had occupied in the former cathedral. After Conrad's death the work of building advanced but slowly, and at the time of the Reformation it ceased entirely. In the early part of the nineteenth century the repairing of the cathedral was taken in hand, and in 1842 the building of fresh portions necessary for the completion of the whole structure was commenced. The cathedral, which is in the form of a cross, has a length of 480, a breadth of 282 feet; the height of the central isle is 154 feet; that of each of the towers upward of 500 feet. The heaviest of the six bells weighs eleven tons. In the choir the heart of Mary de' Medici is buried; and in the adjoining side-chapels are monuments of the founder and other archbishops of Cologne, and the shrine of the three kings, which is adorned with gold and precious stones. The very numerous and richly-colored windows, presented at various times to the cathedral, add greatly to the imposing effect of the interior.

Many of the churches of Cologne are of interest both for their age and for the monuments and works of art they contain.

The walls which surround the city are about seven miles in circuit. Outside the walls, to the north side, are the Zoölogical and the Botanical Gardens. Cologne has a considerable trade in corn, wines, hides, and rapeseed with Holland, Belgium, and other countries; and steamers ply regularly between the city and the ports on the Rhine. The principal manufactures are cotton yarn and stuffs, hosiery, woollens, silks, tobacco, sugar, soap, wax-lights, starch, malt, dyes, white-lead, porcelain, carpets, brandy and spirits, eau-de-cologne, and leathern and metal wares. In 1815 the population of Cologne was 47,000; in 1888 it amounted to 139,233, or, if that of Deutz be included, about 141,000.

COLOMBIA, or, according to the official title, the Republic of the United States of Colombia, is a modern confederation in South America, consisting of the nine states of Antioquia, Bolivar, Boyacá, Cauca, Cundinamarca, Magdalena, Panama, Santander, and Tolima, and comprising a considerable portion of the territory of the old Spanish vice-royalty of New Granada. It is bounded on the N. by the Caribbean Sea, on the E. by Venezuela, on the S. by Ecuador and Brazil, and on the W. by the Pacific,—its total area being roundly estimated at 500,000 square miles, or more than double that of Spain and Portugal. About four-fifths lies to the north of the equator.

On the Atlantic it possesses a coast line of upwards of 1,000 miles, richly furnished with bays and natural harbors. Proceeding westward from Calabozo Creek, in the Gulf of Maracaibo, the first inlet of real importance which we discover is the Bahia Honda, which is well protected from the strong winds of the east and north, but is rendered unsuitable for the establishment of a port by its lack of drinkable water. Passing by the Bay of El Portete, we next reach the ports of Riohacha and Dibulla, of which the former is of considerable commercial importance as a center of exportation, though it is greatly surpassed by that of Santa Marta, which is the next to break the coast-line. Santa Marta is situated at the side of the Cienega Lagoon, which stretches twenty-five miles from south to north, with a breadth of eleven from east to west, has communication with the lakes of Pajalal and Cuatro Bocas, and, though rather shallow, can be navigated by flat-bottomed steamboats. At the mouth of the Magdalena lies the port of Barranquilla, and a short distance to the west that of Sabanilla, one of the most active along the whole coast. After these comes the splendid Bay of Carthagena, known for centuries to all navigators of the Caribbean; and still farther to the west the coast is broken by the port of

Zapote, the Bay of Zispata, the Gulf of Morrosquillo, and finally by the noble Gulf of Darien, with the estuary of the Atrato and the ports of Turbo, Guacuba, Candelaria, &c. Along the isthmus are the Mandinga Creek; the Bay of Portobello, so famous in the history of Spanish America; the modern port of Colon, or Aspinwall, at the entrance of Navy Bay; and the now decadent port of Chagres. The coast-line of the Pacific is hardly so important as that of the Atlantic, except along the isthmus, where it forms the great Bay of Panama, with the subordinate inlets of Parita Bay on the west and the Gulf of San Miguel on the east. Along the remainder of the line are Cupica, San Francisco, Solano, Palmar, and Charambira (the last obstructed by a bar), the large Bay of Malaga, protected by the Isla de Palmas, with the harbors of Guapi and Izcuandé, the Bay of Pasa Caballos, the harbor of Tumaco, and in the Island of Gorgona the fine harbor of Trinidad.

The western part of Colombia is one of the most mountainous districts in the world; its eastern extension belongs to the great plains of the Orinoco and the Amazon. The mountains are all more or less directly portions of the system of the Andes. Entering at the south from the territory of Ecuador, they form an extensive plateau from which a large number of rivers take their rise. The portion known as the *paramo* of Cruz Verde has, according to Steinheil, an elevation of 10,975 old Paris feet, or about 11,695 English feet. From this table-land the system breaks up into three ranges, which stretch north through nearly the whole length of the country, with a general parallelism of direction least maintained by the eastern portion. Of these ranges the loftiest at first is the Central, or the Cordillera of Quindiu, which contains the snow-peaks of Huila, Ruiz, and Tolima, the culminating peak of the Andes north of the equator; but in 5° 5' N. lat., where this range sinks down, the Eastern rises to the snow limit, and is the most elevated of the three Cordilleras. The Eastern Cordillera, or the Cordillera de la Suma Paz, runs north-east to the paramos of Pamplona, from which it sends out a branch to meet the *massif* of the Sierra Nevada of Santa Marta. In its passage through the state of Santander it attains in the Alto de el Viejo an altitude of 12,965 feet, in Alto de el Trio of 9,965, and in the Boca del Monte of 12,735. The Sierra Nevada is said to reach a height of 23,779 feet, and it is certainly covered with perpetual snow over a large part of its summit. The Western Cordillera, or Cordillera de Choco, is the least remarkable of the three, and has been worn down in many places into what are comparatively mere rounded hills with easy passages between; it continues northward, however, much further than the central chain, and in fact extends right through the Isthmus of Panama.

The *llanos* or plains of the Orinoco extend eastward from the slopes of the Cordillera de la Suma Paz. As far south as the Vichada they form an almost complete level, destitute of trees, and affording abundant pasturage; while further south they are covered with forests, display considerable irregularity of surface, and are not unfrequently broken by steep rocks rising to a height of from 300 to 600 feet.

The rivers of Colombia belong almost entirely to the great Atlantic versant; but they are distributed by the principal water-shed in very various directions. The two most important are the Magdalena or Rio Grande and the Cauca, which both flow from south to north through nearly the entire length of the country,—the former occupying the valley between the Eastern and Central Cordilleras, and the latter that between the Central and the Western. They unite about 130 miles before reaching the sea, but they so long maintain an inde-



pendent course that neither can fairly be regarded as a mere tributary of the other. The Magdalena takes its rise in a small lake called the Laguna del Buey or Ox Lake, situated in the plateau of Las Papas. It receives from the right hand the Suaza, the Rio Neiva, the Cabrera, the Prado, the Fuzagasanga, famous for the falls of Tequendama, the Begotá, the Carare, the Opon, the Sagamoso, itself a considerable stream, and the Rio Cesar, a fine river from the Sierra Nevada; and from the left the La Plata, the Paez, the Saldaña, the Cuello, the Guali, the Samana, or Miel, the Nare or Rio Negro, and various minor tributaries. The Magdalena is one of the most important water highways of the country, in spite of the fact that its current is so rapid as to make the upward voyage both difficult and tedious. From Honda, where the progress is interrupted by rapids, a native boat takes only about three days to reach the sea, while no fewer than six weeks are spent, even when the water is low, in returning against the stream. Steamers of from 50 to 200 tons burden, however, have plied regularly since 1833 between Honda and Barranquilla. The Honda rapids can be surmounted by haulage, and steamers descend them in safety, though there is a fall of twenty feet in two miles, and of sixteen feet in the first. Above this point the channel is clear about half-way to the source, and though the traffic is still mainly carried on by native boats and rafts, a German named Alexander Weckbecker, succeeded, in 1875, in taking a large steamboat—the "Moltke"—three times to the town of Neiva. The Cauca rises to the west of the source of the Magdalena, in the Lake of Santiago, in the paramo of Guanacas. In the upper part of its course it flows through a volcanic region, and its waters are so impregnated with sulphuric and other acids that they are destructive of fish. These acids are mainly contributed by the headstream of the Rio Vinagre or Vinegar River, which rises in the Purace volcano. The principal tributaries are the Piendamó, the Ovejas, the Palo, the Amaime, and the La Vieja, from the Central Cordillera; and the Jamundi and a large number of minor streams from the Western. After the junction of the Cauca and the Magdalena the united stream attains an imposing breadth; but it breaks up into several channels before it falls into the sea. The River Atrato, which disembogues in the Gulf of Darien and separates the main branch of the Eastern Cordillera from the isthmian ranges, is of high importance, not only in itself as an actual means of communication, but as affording, in the opinion of many engineers, one of the most feasible means of forming an interoceanic canal. So important was it regarded by Philip II. that its navigation was forbidden in 1730 on pain of death; and the prohibition was not removed for a considerable period. The account, however, so frequently repeated, of the possibility of passing from the Atlantic to the Pacific versant by means of a canal, excavated about 1788 in the Raspadura ravine by some enterprising monk, seems to have little or no foundation. The Atrato rises in the slopes of the Western Cordillera, has a course of about 300 miles, and a breadth, during the last ninety-six miles, of from 750 to 1,000 feet. Its depth in this lower part of its passage varies from forty to seventy feet or even more. At Quibdó, 220 miles from the embouchure, it is still 850 feet wide and eight to twenty feet deep; and as the fall of the river is only about three inches to a mile, steamboats can pass as far as the confluence of the San Pablo and Certigui, thirty-two miles above Quibdó.

Of those rivers that belong to the Orinoco system the most important are the Guaviare, the Meta, and the Vichada.

Colombia is distinctively a mineral country, and the

list of its productions in this department includes gold, silver, platinum, copper, lead, iron, mercury and antimony, limestone, potash, soda, magnesia, alum and salt, coal and asphalt, emeralds, amethysts and amber. Many of the most important deposits are as yet untouched, owing mainly to the defective state of internal communication, and even those that have been worked have proved much less remunerative from the same cause. Gold especially is very widely diffused; it was freely used by the natives before the arrival of Europeans, and formed a valuable source of revenue to the Spanish Government, who employed thousands of negroes and Indians in the task of collection. It is principally obtained from alluvial deposits: and in some districts there is hardly a stream that would not furnish its quota. Though Colombia is situated within the tropics, and, in fact, as we have seen, is crossed by the equator in its southern limits, its great irregularity of surface and its extensive coast-lines develop a great variety of climatic conditions. A comparatively short journey transports the traveler from the sultry valley of the Magdalena, where the water grows tepid and the stones burning hot in the sun's rays, to the summits of a mountain where the snow lies cold from year to year. In the table-lands and valleys of the Eastern and Western Cordilleras, at a height of 800 to 9,500 feet above the level of the sea, there are two dry seasons and two rainy, the former commencing at the solstices and the latter at the equinoxes, while in the lowlands, both of the Pacific and the Atlantic seaboard, there is only one dry and one rainy of six months each. In the Gulf of Darien and the Isthmus of Panama there is no such distinction, and rain occurs in any part of the year.

In keeping with this variety of climate the Colombian flora ranges from purely tropical forms in the lowlands up to purely Alpine or boreal types in the mountains. The tree limit on Tolima, in the Central chain, is 10,360 feet. The country abounds with extensive forests, in which timber of gigantic proportions waits for the settler's axe. Besides several of the common species of palm trees, which are found as high as 2,500 feet above the sea, there are two remarkable species, the *Ceroxylon andicola*, Palma de Cera, or wax-palm, and the *Oreodoxa regia*, or Palmita del Azufra, which in company with the oak, frequently clothe the Cordilleras to a height of 6,000 or 8,000 feet. They are both of extreme beauty, and the former shoots up to about 180 or 200 feet. From the Sierra Nevada and other districts are obtained logwood, Brazil-wood and fustic; and the *Myroxylon toluifera*, from which the balsam of Tolu is collected, grows luxuriantly on the banks of the Rio Negro. Excellent India-rubber is obtained from the *Castilleja elastica*, a lofty and luxuriant tree, which occurs in considerable abundance in Panamá, Cauca, and other States. The quantity and quality of the material might be greatly increased and improved, as the collection is still in the hands of a very rude and careless class of men.

The fauna is perhaps hardly so rich as the flora, but it does not fall far behind. Of monkeys there are at least seventeen distinct species; the feline race is represented by seven or eight, including the puma and the jaguar; there are two species of bears; the alligator swarms in the Magdalena and some of the other rivers; deer are common at various elevations: the sloth, the armadillo, the guagua (*Calogenus subniger*), the opossum, and the cavy prevail in the forests; and the tapir or danta wanders in the higher regions. Among the birds may be mentioned the condor and ten other birds of prey, several species of swallows, numerous varieties of parrots, paroquets, lories and cockatoos, cranes and storks, the pleasant-singing tropical, and the strangely-

colored *sol-y-luna*, which takes its name from the figure of the sun and moon on its wings. The *boa constrictor*, the *yaruma*, the *cascabel*, and various other serpents are frequent enough in the warmer regions, but are not met with at a greater height than 5,400 feet above the sea. Insects are abundantly represented, the most important practically being the ants, which in some districts, as for instance the isthmus, are almost a plague. Turtleabounds on the coasts; and pearl-oysters are the object of a very considerable fishery.

Agriculture holds the first place among the industries of Colombia; but the methods employed are still of a very rude description. Maize, wheat, and other cereals are cultivated on the elevated plains; rice, cotton, tobacco, sugar, coffee, cocoa, yams, *arracacha*, and bananas in the coast region. Tobacco is especially successful in Ambalema, Carmen, Palmira, Jiron, and Morales, and it forms an important export. In the plains of the Orinoco and the undulating savannahs of Panama the breeding of cattle and horses is largely carried on by the creole inhabitants, and several of the Indian tribes are also in possession of valuable herds. Beyond such common (almost domestic) trades as hand-weaving, dyeing, tanning, and basket-making, there is almost no manufacturing industry in the country, though the basis for future development has been laid by the establishment in Bogotá of glass-works, distilleries, a cigar-factory, and a sulphuric acid factory. One product of the domestic industry alone finds its place in the list of exports—namely, straw hats, usually known as *jipijapa* or Panama hats. The raw produce, however, is largely exported; the principal articles being cinchona bark, indigo, coffee, cotton, tobacco, silver ore, hides, and the minor items—ivory-nuts, *ipecacuanha*, and balsam of Tolu.

The national government of Colombia is republican,—the main basis of the constitution being a scheme drawn up in 1863 after the model of the United States of North America. The executive power is exercised by the president and four ministers or *secretarios*. The presidential elections recur every two years; the choice is determined by a majority of the States; and the new president enters on office on the 1st of April. The secretaries have charge respectively of the four departments of Home and Foreign Affairs, Finance and Public Works, Treasury and Credit, and War and Marine. The legislative power of the federation is divided between a house of representatives elected by universal suffrage, and a senate of twenty-seven members, or three from each State. The number of the representatives depends on the size of the State-population—one being allowed for every 50,000 inhabitants, and one for the remainder if it reaches 20,000. In 1889 there were in all sixty-one representatives. There is a supreme court at Bogotá, conducted by a president, four judges, and a procurator-general; the judges are elected by the legislative houses of the nine states. There is no state church, and full religious liberty prevails. The predominant profession, however, is the Roman Catholic, and an archbishop is established at Bogotá.

The educational condition of Colombia has hitherto been very low; but by a law published in 1870, the management of public instruction was taken from the hands of the clergy and intrusted to the state, a complete reform of the school system was effected, teachers were introduced from Europe, and compulsory education was adopted.

The population of the territory of the present republic at the time of the Spanish Conquest consisted of a large number of independent tribes of very various degrees of civilization. Of these several have totally disappeared as separate unities; others have been in large measure

Hispanicized both in language and in habits; many still retain their separate dialects, organization, and customs, and some are even now as opposed to the European movement as they were when the first white foot left its print on their shores. The exact number of the uncivilized Indians is hardly ascertained; it was roughly calculated by Mosquera as ranging from 108,000 to 120,000. The rest of the population is composed mainly of Spanish Creoles, Negroes, and mixed races. According to Samper it was divided in 1888 as follows:—1,527,000 whites and white crossbreeds, 447,000 crossbreeds in which the Indian blood is more distinctly present, 90,000 Africans, and 446,000 crossbreeds in which the Negro or Indian blood is plainly predominant.

The coast of Colombia was one of the first parts of the American continent visited by the Spanish navigators. Alonso de Ojeda touched at several points in 1499 and 1501; and Columbus himself visited Veragua, Portobello, and other places in his last voyage in 1502. In 1508 Ojeda obtained from the Spanish Crown a grant of the district from Cape Vela westward to the Gulf of Darien, while the rest of the country from the Gulf of Darien to Cape Gracias-a-Dios was bestowed on his fellow-adventurer Nicuesa. The two territories designated respectively Nueva Andalucia and Castella de Oro were united in 1514 into the province of Tierra-firma, and entrusted to Pedro Arias de Avila. By the middle of the century the Spanish power was fairly established, and flourishing communities arose along the coasts, and in the table-lands of Cundinamarca formerly occupied by the Muisca. For the better government of the colony the Spanish monarch erected a presidency of New Granada, which continued till 1718, when it was raised to the rank of a viceroyalty. In the following year, however, the second viceroy, D. Jorge Villalonga, Count de la Cueva, expressing his opinion that the maintenance of this dignity was too great a burden on the settlers, the viceroyalty gave place to a simple presidency. In 1740 it was restored, and it continued as long as the Spanish authority, including within its limits not only the present Colombia, but also Venezuela and Ecuador. An insurrection against the home Government was formally commenced in 1811, and an incessant war against the Spanish forces was waged till 1824. In 1819 the great national hero, Bolivar (see BOLIVAR), effected a union between the three divisions of the country, to which was given the title of the Republic of Colombia; but in 1829 Venezuela withdrew, and in 1830 Quito or Ecuador followed her example. The Republic of New Granada was founded November 21, 1831; and in 1832 a constitution was promulgated, and the territory divided into eighteen provinces, each of which was to have control of its local affairs. The president was to hold office for four years; and the first on whom the dignity was bestowed was General Santander. His position, however, was far from enviable; for the country was full of all the elements of unrest and contention. One of his measures, by which New Granada became responsible for the half of the debts of the defunct republic of Colombia, gave serious offense to a large party, and he was consequently succeeded not, as he desired, by José Maria Obando, but by a member of the opposition, José Ignacio de Marquez. This gave rise to a civil war, which lasted till 1841, and not only left the country weak and miserable, but afforded an evil precedent which has since been too frequently followed. The contest terminated in favor of Marquez, and he was succeeded in May, 1841, by Pedro Alcantara Herran, who had assisted to obtain the victory.

In 1840 the province of Cartagena had seceded, and the new president had hardly taken office before Pan-

ama and Veragua also declared themselves independent, under the title of the State of the Isthmus of Panamá. Their restoration was, however, soon effected; the constitution was reformed in 1843; education was fostered, and a treaty concluded with the English creditors of the republic. Further progress was made under General Mosquera from 1845 to 1848; a large part of the domestic debt was cleared off, immigration was encouraged, and free trade permitted in gold and tobacco. The petty war with Ecuador, concluded by the peace of Santa Rosa de Carchi, is hardly worthy of mention. From 1849 to 1852 the reins were in the hands of General Lopez, a member of the democratic party, and under him various changes were effected of a liberal tendency. In January, 1852, slavery was entirely abolished. The next president was José María Obando, but his term of office had to be completed by vice-presidents Obaldia and Mallarino. In 1853 an important alteration of the constitution took place, by which the right was granted to every province to declare itself independent, and to enter into merely federal connection with the central republic. In 1856 and 1857 Antioquia and Panama took advantage of the permission. The Conservative party carried their candidate in 1857, Mariano Ospino, a lawyer by profession; but an insurrection broke out in 1859, which was fostered by the ex-president Mosquera, and finally took the form of a regular civil war. Bogotá was captured by the democrats in July, 1861, and Mosquera assumed the chief power. A congress at Bogotá established a republic, with the name of the United States of Colombia, adopted a new federal constitution, and made Mosquera dictator. Meanwhile the opposite party was victorious in the west; and their leader, Arboleda, formed an alliance with Don García Moreno, the president of Ecuador. He was assassinated, however, in 1862; and his successor, Canal, came to terms with Mosquera at Cali. The dictatorship was resigned into the hands of a convention at Rio Negro, in Antioquia; a provisional government was appointed, a constitution was drawn up, and Mosquera elected president till 1864. An unsuccessful attempt was also made to restore the union between the three republics of the former federation. The presidency of Manuel Murillo Toro (1864-66) was disturbed by various rebellions, and even Mosquera, who next came to the helm, found matters in such a disorganized condition that he offered to retire. The presidency of Santos Gutiérrez (1868-70) was disturbed by insurrections in different parts of the republic, the most important of which was that in Panama, where the most absolute disorganization prevailed. Under his successor, General E. Salgar, a Liberal candidate elected in opposition to General Herrán, a treaty was finally concluded with the United States in connection with an interoceanic canal, a bank was established at Bogotá, and educational reforms instituted. Manuel Murillo Toro (1872-74) and Santiago Pérez (1874-76) have seen the country apparently acquiring constitutional equilibrium, and turning its energies to the development of its matchless resources. There has been no war with foreign states for several years; and though the question of the boundary lines frequently causes dispute between Colombia and her eastern neighbors, Venezuela and Brazil, it has, thus far, however, been peacefully settled. The election for the presidential term of 1884-90 resulted in the accession of Rafael Núñez.

COLOMBO, the capital and principal seaport town of Ceylon, on the west coast of the island. The fortified part of the town is about a mile and a half in circuit, and occupies a rocky promontory of but slight elevation, surrounded on three sides by the sea, and protected on

the land side by a lake, a moat, and draw-bridges. The Galle Face affords a favorite promenade for the European population; Pettah is mainly inhabited by natives and half castes; and Colpetty is a beautiful suburb. Colombo contains the government offices and courts, and is the residence of the civil and military authorities, the seat of a Church of England bishop, and a center for Roman Catholic, Wesleyan, Baptist, and other missionary organizations. The principal articles of manufacture in Colombo are coffee, oil, and coir; the first of these especially keeps a large number of mills in operation. The population of Colombo is of Sinhalese, Parsees, Chinese, Malabars, Arabs, Persians, Kaffirs, Afghans, descendants of Portuguese and Dutch, and half castes of all colors. In 1889 the total number of inhabitants was given as 97,129, of whom 42,160 were Sinhalese, 22,389 Moors, 20,633 Tamils and Chatteries, and 1,765 Europeans. Colombo was originally known as the Kalantotta or Kalany ferry. By the Arabs the name was changed to Kalambu, and the town is mentioned by Ibn Batuta about 1340 as the largest and finest in Serendib. In 1517 the Portuguese effected a settlement, and in 1520 they fortified their port and bade defiance to the native besiegers. In 1586 the town was again invested by Raja Singh, but without success. On its capture by the Dutch in 1656 it was a flourishing colony with convents of five religious orders, churches, and public offices, inhabited by no fewer than 900 noble families and 1,500 families dependent on mercantile or political occupations. In 1796 it was surrendered to the British.

COLON. See ASPINWALL.

COLONNA, a village in Central Italy, is noted because it gives its name to the most celebrated and powerful of all the Roman aristocratic families—the Colonna—from which have sprung a Pope, several cardinals, generals, statesmen, and noted scholars. The Colonna palace, situated at the base of the Quirinal (Rome), is celebrated for its splendid gallery and treasures of art.

COLONNA, CAPE (ancient *Sunium Promontorium*), a headland of Greece, forming the southernmost point of Attica, in latitude $37^{\circ} 38' N.$, longitude $24^{\circ} 1' E.$

COLONNA, GIOVANNI PAOLO, chapel-master of St. Petronio at Bologna, and president of the Philharmonic Academy there, was born at Brescia about the middle of the seventeenth century. The music school which he established at Bologna produced many good musicians, among them Clari. Most of Colonna's works are for the church, and are among the most remarkable compositions of the seventeenth century.

COLONNA, VITTORIA (1490-1547), the daughter of Fabrizio Colonna, grand constable of the kingdom of Naples, and of Anna da Montefeltre, daughter of the "Good Duke" Frederick of Urbino, was born at Marino, a Roman fief of her father's house. Betrothed when four years old, at the instance of Ferdinand of Aragon, to Francisco D'Avalos, son of the marquis of Pescara, she received the highest education, and gave early proof of a love of letters. Her hand was sought, among other suitors, by the dukes of Savoy and Bragança, but at seventeen, as she ardently desired, her marriage with D'Avalos took place. The couple resided on the islet of Ischia till 1511, when the husband offered his sword to the Holy League, in whose service he was taken at Ravenna (1512), and carried to France. During the months of exile and the long years of campaigning that followed this mishap, they corresponded in most passionate terms, in prose and verse. They saw each other but seldom, for Pescara was one of Charles V.'s most brilliant and active captains; but Vittoria's influence over him was sufficient to keep him, after Pavia (1525), from joining the projected league against the emperor,

and to make him refuse the crown of Naples that was offered him as the price of his treason. The same year he died of wounds at Milan. Vittoria, who was hastening to tend him, received the news of his death at Viterbo. She halted, and turned off to Rome, whence, after a brief stay, she departed for Naples. There she remained for about ten years. She refused several suitors, and began to produce those *Rime Spirituali* that form so distinct a feature in her works. In 1536 she left Naples for Ferrara, calling at Rome, where she was visited by Charles V., and whither in 1538 she came to take up her abode. In Rome, besides winning the esteem of Reginald Pole and Cardinal Contarini, she became the object of a passionate friendship on the part of Michel Angelo, then in his sixty-fourth year. The great artist wrote for her some of his finest sonnets, made drawings for her, and spent long hours in her society. Her removal from Rome to Orvieto (1541), on the occasion of her brother Ascanio Colonna's revolt against Paul III., and her subsequent residence in Viterbo (1541-45), where Reginald Pole was governor and legate, produced no change in their relations; they visited and corresponded as before. She returned to Rome in 1546, and died there about the end of February, 1547.

COLONY. The term colony, often loosely applied, is most commonly used to denote a settlement of the subjects of a sovereign state in lands beyond its boundaries, owning no allegiance to any foreign power, and retaining a greater or less degree of dependence on the mother country. The founding and the growth of such communities furnish matter for an interesting chapter in the history as well of ancient as of modern civilization; and the regulation of the relations between the parent state and its dependencies abroad gives rise to important problems alike in national policy and in international economics.

It was mainly the spirit of commercial enterprise that led the Phœnicians to plant their colonies upon the islands and along the southern coast of the Mediterranean; and even beyond the Piliars of Hercules this earliest great colonizing race left enduring traces of its maritime supremacy. Carthage, indeed, chief of the Phœnician settlements, sent forth colonies to defend her conquests and strengthen her military power; and these sub-colonies naturally remained in strict subjection to her power, whereas the other young Phœnician states assumed and asserted entire independence.

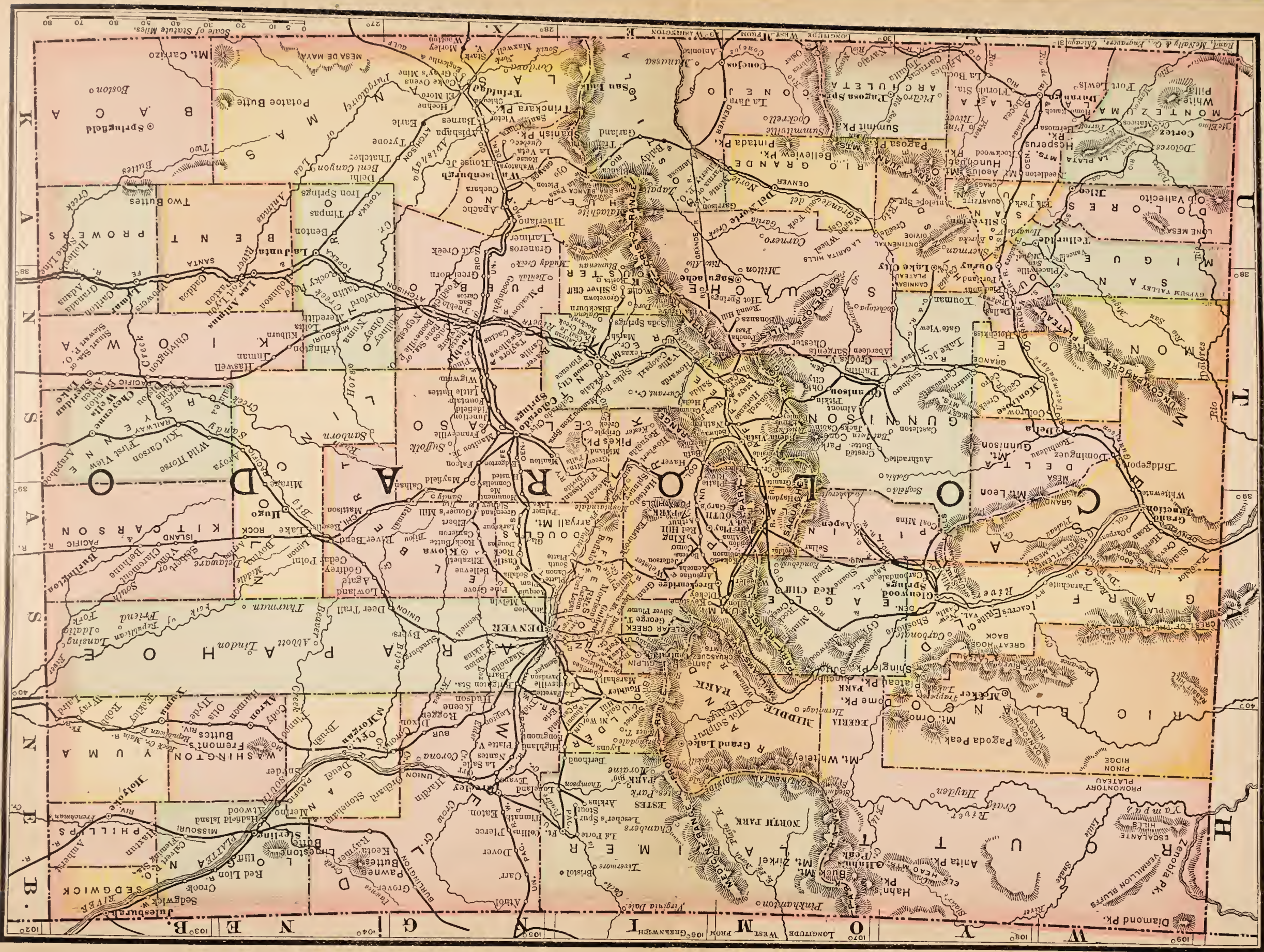
In this latter respect the Greek colonies resembled those of the Phœnicians. From a very early period the little civic communities of Greece had sent forth numerous colonizing streams. At points so far asunder as the Tauric Chersonese, Cyrene, and Massilia were found prosperous centers of Greek commercial energy; but the regions most thickly peopled by settlers of Greek descent were the western seaboard of Asia Minor, Sicily, and the southern parts of the Italian peninsula. Nor were the least prosperous communities those which were sprung from earlier colonies. The causes that led to the foundation of the Greek colonies were very various. As in Phœnicia, pressure created by the narrow limits of the home country coincided with an adventurous desire to seek new sources of wealth beyond seas; but very many Greek emigrations were caused by the expulsion of the inhabitants of conquered cities, or by the intolerable domination of a hated but triumphant faction within the native state. The polity of the new community, often founded in defiance of the home authorities, might either be a copy of that just left behind or be its direct political antithesis. But wherever they went, and whether, as apparently in Asia Minor, Greek blood was kept free from barbaric mixture, or

whether, as in Magna Græcia and Sicily, it was mingled with that of the aboriginal races, the Greek emigrants carried with them the Hellenic spirit and the Hellenic tongue; and the colonies fostered, not infrequently more rapidly and more brilliantly than at home, Greek literature, Greek art, and Greek speculation. The relation to be preserved toward the mother states was seldom or never definitely arranged. But filial feeling and established custom secured a measure of kindly sympathy, shown by precedence yielded at public games, and by the almost invariable abstinence of the colony from a hostile share in wars in which the mother city was engaged.

The relation of Rome to her colonies was altogether different. No Roman colony started without the sanction and direction of the public authority; and while the *Colonia Romana* differed from the *Colonia Latina* in that the former permitted its members to retain their political rights intact, the colony, whether planted within the bounds of Italy or in provinces such as Gaul or Britain, remained an integral part of the Roman state. In the earlier colonies, the state allotted to proposing emigrants from among the needy or discontented class of citizens portions of such lands as, on the subjection of a hostile people, the state took into its possession as public property. At a later time, especially after the days of Sulla, the distribution of the territories of a vanquished Roman party was employed by the victorious generals as an easy means of satisfying the claims of the soldiery by whose help they had triumphed. The Roman colonies were thus not merely valuable as *propugnacula* of the state, as permanent supports to Roman garrisons and armies, but they proved a most effective means of extending over wide bounds the language and the laws of Rome, and of inoculating the inhabitants of the provinces with more than the rudiments of Roman civilization.

The occupation of the fairest provinces of the Roman empire by the northern barbarians had little in common with colonization. The Germanic invaders came from no settled state; they maintained loosely, and but for a short while, any form of brotherhood with the allied tribes. A nearer parallel to Greek colonization may be found in Iceland, whither the adherents of the old Norse polity fled from the usurpation of Harold Haarfager; and the early history of the English pale in Ireland shows, though not in orderliness and prosperity, several points of resemblance to the Roman colonial system.

Though both Genoese and Venetians in their day of power planted numerous trading posts on various portions of the Mediterranean shores, of which some almost deserve the name of colonies, the history of modern colonization on a great scale opens with the Spanish conquests in America. The first Spanish adventurers came, not to colonize, but to satisfy as rapidly as possible and by the labor of the enslaved aborigines, their thirst for silver and gold. Their conquests were rapid, but the extension of their permanent settlements was gradual and slow. The terrible cruelty at first exercised on the natives was restrained, not merely by the zeal of the missionaries, but by effective official measures; and ultimately home-born Spaniards and Creoles lived on terms of comparative fairness with the Indians and with the half-breed population. Till the general and successful revolt of her American colonies, Spain maintained and employed the latter directly and solely for what she conceived to be her own advantage. Her commercial policy was one of most irrational and intolerable restriction and repression; and till the end of Spanish rule on the American continent, the whole political power was retained by the court at Madrid, and administered in the colonies by an oligarchy of home-bred Spaniards.



The Portuguese colonization in America, in most respects resembling that of Spain, is remarkable for the development there given to an institution sadly prominent in the history of the European colonies. The nearness of Brazil to the coast of Africa made it easy for the Portuguese to supply the growing lack of native labor by the wholesale importation of purchased or kidnapped Africans.

Of the French it is admitted that in their colonial possessions they displayed an unusual faculty for conciliating the prejudices of native races, and even for assimilating themselves to the latter. But neither this nor the genius of successive governors and commanders succeeded in preserving for France her once extensive colonies in Canada or her great influence in India. In Algeria the French Government has not merely found a practical training school for her own soldiers, but by opening a recruiting field among the native tribes it has added an available contingent to the French army.

The Dutch took early a leading share in the carrying trade of the various European colonies. They have still extensive plantations in the East Indian Archipelago; and though their settlement at the Cape passed into British hands, a republic of Dutch-speaking boers maintains a precarious existence northward from the British possessions. The Danish and Swedish dependencies in the Antilles are but trifling in extent or importance.

It is the English-speaking race that has shown an unexampled energy and capacity for colonization. The English settlements in Virginia, New England, Maryland, and Pennsylvania had, between the second decade of the seventeenth and the seventh decade of the eighteenth century, developed into a new nation that was soon able to take rank with the most powerful of European states. Promoted in great measure by the desire to escape from the political or religious oppression of the English court, the transatlantic settlements were, though remaining under governors appointed by England, permitted to arrange their civil polity—necessarily assuming a democratic shape—very much as they chose; and, at first, troubles at home, and later, their distance, saved the colonies from much political interference on the part of successive English Governments. Though by the "Navigation Laws" and other enactments, England had always undertaken to regulate, in her own interest, the commercial relations between herself and her American colonists, encroachment, in the matter of taxation, on the immunity till then enjoyed provoked the spirit that in 1776 solemnly published and declared "that these United Colonies are, and of right ought to be, free and independent States." The vast unoccupied territories of the United States relieve her citizens and the immigrants who join them from seeking scope for their enterprise beyond the recognized limits of the Republic; but the method according to which the United States Government provides for the continuous westward advance of new settlements is essentially a system of colonization. The newly occupied lands are governed as a "territory" by the Federal Government, till the population reaches a fixed limit high enough to justify a demand to be admitted to the Union on an equal footing with the other States. The "American Colonization Society" has made an interesting philanthropic experiment for the establishment of negro freedmen in Africa; the result is the existing independent Republic of Liberia.

COLOPHON, an ancient city of Asia Minor, situated a short distance from the coast, and about eight miles north of Ephesus. It was founded by the Ionians, but did not take part in the great political festival of the Apaturia. The principal facts in its history

are its capture by the Persians and its depopulation by Lysimachus. At a later date the name was not unfrequently applied to the contiguous city of Notium, which continued to flourish till the time of Cicero at least. The site of Colophon is easily determined, but there are hardly any traces of its buildings. It claimed to be the birthplace of Homer, and, besides various lesser names, it numbered among its celebrities Mimnermus the elegiac poet, and Nicander the author of the *Theriaca*. Its name was given to a resin obtained from the pines on the neighboring Mount Galesus, and is still recognizable in "colophony," and in the French *colophane*.

COLORADO, one of the United States of North America, is situated between the 37th and 41st degrees of latitude, and the 102d and 109th degrees of longitude. It is bounded on the north by Wyoming and Nebraska; east by Nebraska and Kansas; south by the Indian Territory and New Mexico, and west by Utah. Its form is that of a perfect parallelogram, and it is the only State whose lines are so defined. Its area is 103,477 square miles, or 66,205,875 acres. It is traversed from north to south by the main range of the Rocky mountains, and forms a part of the region designated upon the early maps of the United States as the "Great American Desert," then supposed to be inhabited only by wild and fierce tribes of Indians, whose chief occupations were the chase and almost incessant wars. The plains of Kansas, Nebraska, and Colorado were, in past ages, covered by a great paleozoic ocean, and are now filled with fossil remains of fishes, reptiles, and animals. They rise gradually from the Missouri river to the base of the great Rocky chain. This broad and comparatively level expanse is destitute of timber, excepting a fringe of cottonwoods on the borders of the streams, but is covered with short, nutritious grasses, upon which, prior to their invasion by settlers, myriads of buffalo, antelope, and deer subsisted. All these animals have been destroyed except a few small herds which fled to the isolated valleys of the mountains as their last refuge.

The plains east of the mountains constitute about one third of the total area. Among the elevated ranges are four large natural parks—the North, South, Middle, and San Luis, which form distinct, picturesque and beautiful features of the mountain system and are watered by numerous streams and covered with verdure. The San Luis park, situated in the southwestern division, is the only one of the series that is well adapted to agriculture, and the only one which has been peopled to any considerable extent. It is traversed from north to south by the Rio Grande river, has six towns, a mixed population of Americans and Mexicans, the whole numbering about 6,000. The soil is fertile and the climate adapted to the growth of cereals and esculents. Though but recently settled, it is destined to be one of the most productive agricultural districts of the State. The other parks mentioned are too elevated for enlarged husbandry and the seasons are too short, but they possess many advantages for stock-growers, and are devoted to grazing. Any part of the plains east of the Rocky mountains and most of the mountain valleys can be made productive by irrigation. The extent to which these lands can be tilled is limited only by the supply of water. Many sections on the eastern border where there are no large streams, have been successfully farmed from the natural rainfall, which is generally greater there than in the central portion.

Sixteen thousand square miles are covered by forests, chiefly yellow and white pine and spruce. None of the harder woods, except a few clusters of scrub oaks, worthless for anything but fuel, exist in Colorado, out-

side of the principal towns, where they are used for the adornment of streets and private grounds. The greater part of the lumber employed in building is imported from Oregon, Illinois, and Texas. Four-fifths of the State has an elevation of 4,000 to 10,000 feet above the sea. The lowest on the eastern border is 3,703 feet, and on the western, 4,435. The mountain parks are 8,000 to 9,500 feet above tide water. The summit of the main range averages 11,000 feet. Seventy-two peaks from which the snow never disappears, rise to heights between 13,500 and 14,500 feet. The loftiest of these is the Sierra Blanca, a part of the chain inclosing the San Luis park, 14,483 feet high. The geographical center of Colorado is at a point three miles north-northeast of Spinney Station, on the Colorado Midland railway, in Park county. Colorado was a part of the immense Territory of Louisiana ceded to the United States by Napoleon Bonaparte in 1803. The first explorations were made by Spaniards from Mexico in 1540-42, the first of which, under Francisco Vasquez di Coronado, found in New Mexico near the southern border of Colorado a peculiar race of people dwelling in towns built of stone and adobe, and far superior in intelligence to the savage tribes of nomads. The southwestern part of the State is strewn with the ruins of these people, who were of Aztec or Toltec origin, probably the former, the ancestors or contemporaries of the vast horde which swept down into Anahuac, overthrew the Toltecs and occupied their lands. Several other expeditions came up from the south in later times, and some of them are believed to have penetrated the plains as far east as the Missouri river. The remnant of Hernando De Soto's army, under Louis Moscoso, after the death of the conqueror of Florida, came west to the Rocky mountains, but did not explore them. A Spanish cavalier named Don Juan de Oñate passed up the Rio Grande river into the San Luis park in 1595, and is said to have discovered gold and silver there. Several French expeditions from New Orleans penetrated far out upon the plains toward the mountains; the first in 1712, others from the same source occurred in 1741.

The first regularly organized American exploration of the Rocky mountains occurred in 1806, by direction of the president of the United States. It was conducted by Lieut. Zebulon M. Pike. His report contained the first authentic record of the extent and value of the region. The second was by Maj. Stephen S. Long in 1820. In 1842 John C. Frémont began a series of five explorations, which developed practicable routes for Pacific railways, and led ultimately to the construction of the Union Pacific railway from the Missouri river to San Francisco.

The Territory of Colorado was organized by act of congress approved February 28, 1861, and Maj. William Gilpin was appointed governor. It was admitted into the Union as a State August 1, 1876, when Col. John L. Routt was elected governor.

The cause which led to the settlement of these plains and mountains was the discovery of gold by W. Green Russell with a party of miners from the State of Georgia, who were guided by a small band of Cherokee Indians. They reached the present site of Denver soon after June 1, 1858, and began prospecting the tributaries of the Platte river. The results were not highly successful, though some hundreds of dollars' worth of the precious metal were gathered. Soon afterward some of Russell's men returned to the States and there spread somewhat exaggerated accounts of the discoveries, which induced thousands to emigrate to the region the following year. The greater deposits lay not in the sands and gravels of the plains, but in the elevated regions beyond. The first discoverer of gold in the

mountains, where exist the great deposits that have given Colorado its fame, induced its occupation in force, and supplied abundant means for the expansion of industry in all directions within its borders, was George A. Jackson, a native of Missouri, who, on January 7, 1859, reached a tributary of South Clear creek, opposite the present town of Idaho Springs, and notwithstanding the ground was covered with snow and frozen, with his hunting knife for a pick, and a tin drinking-cup for a pan in which to wash the dirt, obtained half an ounce of gold. In May following he returned to the spot with a number of workers, and methodically opened the placer, which yielded large returns. But the most important of all the discoveries made in the year 1859 occurred in what is now Gilpin county; May 7th, of that year, when John Gregory, an experienced Georgian miner, unearthed the first of the great gold-bearing quartz fissures, of the extensive belt since mined there. Soon after that section became crowded with prospectors and miners, many of whom accumulated fortunes during that and succeeding years. From this base the whole mountain region was explored, and though some extensive placers, notably those of California, Tarryall, and Georgia gulches were found, no section has yet proven so rich in the yellow metal as that first named. Within ten years thereafter the greater part of the placers had been worked out. Meanwhile, however, new sources of wealth were revealed in fissure veins along the mountain sides. In 1865 a belt of silver mines was discovered and opened near the head of South Clear creek, above the present Georgetown. But fissure mining was both laborious and expensive. The ores were found to be refractory, defying the ordinary methods of treatment applied to surface decomposition, in which the gold and silver had been released by atmospheric action. Hence, after the first two years no great prosperity occurred until the establishment of smelting works by Prof. Nathaniel P. Hill at Black Hawk in 1867. After ten years' operation there, a more extended plant was erected at Argo, near Denver. From the beginning in 1867 to 1890 these works have produced in gold, silver, and copper, more than \$50,000,000.

From 1859 to 1877, when the carbonate mines at Leadville began to produce heavily, the annual yield of precious metals in Colorado, with copper and lead added, at no time exceeded \$7,000,000. After that date the production was large. The total returns from the beginning to the close of 1889 have been as follows:

Gold	\$ 89,996,352.69
Silver	218,095,509.38
Copper	2,253,310.26
Lead	53,628,027.55
Total	\$363,973,199.88

No merchantable copper is produced. The small portion returned is converted into sulphate, and thus sold in the markets. The major part of the mines are permanent and may continue to yield largely for centuries.

The first railroad, extending from Denver northward 106 miles to a connection with the Union Pacific at Cheyenne, was completed in June, 1870. Since that date these thoroughfares have multiplied with the progress of settlement, until the advantages of rapid transit have been extended to every important town. Six trunk lines of standard gauge reach Denver from the Missouri river, and one, completed in March, 1888, extends from Denver to Fort Worth, Tex., there connecting with lines to Galveston and New Orleans. The most extensive system in Colorado is that of the Denver and Rio Grande, which has a base line to Santa Fé, N. M., with laterals reaching out to every prominent town in the southern, southwestern and western division of the State, and by a leased line (the Denver and

Rio Grande Western), conveys through trains to Salt Lake City, Utah, and thence to a junction with the Central Pacific at Ogden, in the same Territory, whence passengers and commerce are conveyed to California. The various lines in Colorado aggregate 4,329 miles.

The climate is dry, mild, and genial, remarkable for its salubrity and healthfulness. While in midsummer the temperature mounts to 90° , and not infrequently to higher flights, owing to the absence of humidity it is rarely oppressive. The nights are invariably cool and refreshing, enabling those who labor to exert their best powers, without suffering from exhaustion as in the lower altitudes. The winters are usually marked by heavy snows upon the higher ranges, but the storms seldom extend out upon the plains. At times, in unusually severe seasons, the temperature falls to zero, frequently to 20° and 30° , but with rare exceptions this depression continues only a few days, at the extreme not more than two or three weeks in any winter. At least 300 days in every year dawn with bright sunshine.

The principal rivers on the eastern slope of the great mountains are the South Platte and the Arkansas; on the western, the Grand and the Gunnison, each reinforced by innumerable tributaries from the melting snows. None are navigable. Here and there are beautiful fresh-water lakes, swarming with fish.

The area of coal-bearing lands, which form an essential feature of its internal economy and one of its principal resources, is estimated at 18,100 square miles, and the gross available tonnage at 45,197,100,000 tons, comprising all grades and varieties from hard, bright anthracite, the dense, bituminous albertites, to the semi-bituminous and clean, soft lignites. From the bituminous, superior illuminating gas and coke are produced. Great quantities of these coals are marketed in the neighboring States of Kansas, Nebraska, and Texas. The gross yield from the small area opened, was in 1889, 2,373,954 tons. The State abounds in iron of nearly all varieties, a part of which is converted into merchandise by the large iron and steel works of the Colorado Coal and Iron Company at Pueblo. The State seems to be lavishly supplied with every natural resource except the finer timbers, including vast deposits of illuminating and lubricating oils, every variety of building and paving stones, and most of the treasures of the mineral kingdom. From all the streams are projected canals and ditches, covering and fructifying immense tracts of rich land, which in their season blossom with the fruits of agriculture and horticulture. The official census of the United States taken in 1890 showed that the population of Colorado had increased to 410,974. In 1888 there were 990 school districts; 820 schoolhouses; 76,212 persons of school age, and 50,745 pupils enrolled. The value of school property was \$3,238,021. The State educational institutes are: A university at Boulder, a normal school at Greeley; a school of mines at Golden; an agricultural college at Fort Collins; a mute and blind institute at Colorado Springs.

COLORADO POTATO BEETLE (*Doryphora decemlineata*), a small beetle, which, since 1861, has done great harm to the potato crops of the United States. It is of a yellowish-cream color, with ten black lines running down the wing-covers. The *larvæ*, which do the principal mischief, are at first reddish-brown, and get paler with increasing age.

COLORADO RIVER, or **RIO COLORADO**, a large river of North America, which rises in the Rocky mountains and falls into the Gulf of California. The main stream, known as the Green river, has its source in Fremont's Peak on the western borders of Wyoming, so that the whole extent of its course must be upward

of 2,000 miles. After receiving the waters of the Yampuh and the White river, it flows south for about 150 miles without any important augmentation till it meets with the great rival stream of the Grand river, which by means of its numerous confluent drains so large a portion of the western versant in the State of Colorado. The united stream continues to force its way south, till at its junction with the Colorado Chiquito, or Little Colorado, which takes its rise in the Sierra Madre of New Mexico, it turns almost due west and cuts right athwart the line of the mountain ranges. Its southern direction is resumed after the confluence of the Virgen from the Wahsatch mountains, and it only receives one other tributary of real magnitude, the River Gila, before it reaches the sea. The enormous canons or ravines through which the Colorado and several of its confluent force their way, render this one of the most remarkable river systems of the world. The Grand Canon alone extends for a distance of about 200 miles westward from the junction of the Colorado Chiquito, and its walls rise almost sheer from the water's edge to a height of from 4,000 to as much as 7,000 feet. Farther down is Black Canon which, with a length of twenty-five miles and a height of 1,000 or 1,500 feet, would be considered a magnificent phenomenon, were it not so completely thrown into insignificance by its more stupendous neighbor. These very features, which give the river its uniqueness, prevent it from being of much use as a means of navigation; but steamers can proceed upward as far as Callville, about 612 miles from the mouth.

COLORADO SPRINGS. A popular summer resort, sixty-five miles from Denver, and situated in the midst of the most beautiful scenery. It is only ten miles from Pike's Peak, whose commanding eminence towers above the landscape, and it is accessible by several lines of railroads. It is an attractive little city, with a permanent population of over 6,000, and the visitors in the season swell the population to fully 10,000. Six miles away is Manitou, and between the two towns lies the famous valley known as the "Garden of the Gods." Mineral springs abound, the scenery is picturesque beyond description, the climate is clear and absolutely perfect, and alike to the scientific observer and the sojourner in search of health, this district offers every element of attraction. Population (1890), 11,140.

COLOR. See **LIGHT** and **OPTICS**. In Art, means either the pigment employed to produce a certain effect to the eye, or the effect thus produced—*i. e.*, the tint of a picture. Recent investigation tends to regard as simple or primary colors, red, green, and violet. It is found impossible to resolve red, green, and violet (or blue) light into any other colors; whereas a yellow ray may be resolved into red and green, or compounded by mingling red and green light. But in popular acceptance, as in the scientific works of Brewster and others, the primaries are red, blue, and yellow. Compounded in various proportions, pigments of the three last mentioned colors produce every tint that is physically possible, and in this respect may still be called primary. First, when combined in twos, they produce the three colors usually termed secondary—that is to say, blue and red make purple or violet; yellow and red, orange; blue and yellow, green. The grays and browns, again, are compounds of all three of the primary colors. A colorist is an artist in whose works success in color is the prominent excellence. The greatest colorists are Titian, Correggio, Paul Veronese, Rubens, and perhaps his pupil, Vandyck.

COLOR-BLINDNESS, a term introduced by Sir David Brewster to denominate a defect of vision, owing to which certain persons are either unable to discern a single color, such as red, or to distinguish be-

tween two colors, such as green and red, so that they may be said to be blind to red, or to be blind to one or two colors presented simultaneously to the eye. One phase of the defect is *chromato-pseudopsis*—i. e., false division of colors; the other is called Daltonism, after Dalton the chemist, who suffered under it. It occurs in eyes whose power of vision, as to form and distance, is otherwise perfect.

COLORS, MILITARY, are certain kinds of flags carried with the army. Standards, banners, pennons, guidons, ensigns, colors—all are military flags, each originally having a distinct meaning, now to some extent departed from.

COLOSSÆ, a once large and important city of Asia Minor, in Phrygia Major, on the Lycus, a branch of the Mæander. The notices of Colossæ in ancient history are few and brief. Xerxes passed through it on his way to Greece, 481 B.C., and at the close of the same century it was visited by Cyrus the younger. It is described by Xenophon in the *Anabasis* as being at that period a large and flourishing city. Like Laodicea, and other cities in that part of Phrygia, Colossæ carried on an extensive trade in wool, and derived a large revenue from the skill of its inhabitants in dyeing that article. After the time of Cyrus the city seems to have gradually decayed, till in the Middle Ages it disappeared altogether. Near its ruins there sprang up another town called Chonæ, the birthplace of the Byzantine historian, Nicetas Choniates, now represented by the town of Khonas. Excavations made in the neighborhood of this place have brought to light the ruins of a large city, which is believed, with good reason, to be Colossæ. The Epistle to the Colossians (see below) is addressed to the inhabitants of this city, in which one of the earliest of the Christian churches in Asia was planted.

COLOSSEUM. See **AMPHITHEATER**, **ARCHITECTURE**, and **ROME**.

COLOSSIANS, THE EPISTLE TO THE, belongs to the third of the four groups under which the Pauline epistles may be chronologically arranged,—a group which occupies a midway position between the letters sent to Corinth, Galatia, and Rome, in the apostle's third missionary journey, and the letters known as the Pastoral Epistles. By similarity of language and matter the epistle to the Colossians is intimately connected with that to the Ephesians; and the notices of St. Paul's companions, and of Onesimus and Archippus, which occur in the Epistle to Philemon, show that this last epistle was also written and sent at the same time as the other two. The epistle to the Philippians belongs to the same group, and the most probable view is that it was from Rome that all four were written by Paul, "the prisoner of Jesus Christ" (comp. Philem. 1). Some critics—among whom may be mentioned Schultz, Böttger, Thiersch, Meyer, and Reuss, whose opinion is strongly advocated by De Pressensé in his *Histoire des Trois Premiers Siècles*—contend that at least three of the epistles were written from Cæsarea; but the traditional view that all four were written from Rome is supported by most modern writers, and is freest from difficulties. The date of the Epistle to the Colossians may be placed about 62 or 63 A.D.

COLOSSUS, in antiquity, a term applied generally to statues of great size, and in particular to the bronze statue of Helios, in Rhodes, which for its size came to be reckoned among the wonders of the world. It was made from the spoils left by Demetrius Poliorcetes when he raised the prolonged siege of Rhodes. The sculptor was Chares, a native of Lindus, and of the school of Lysippus, under whose influence the art of sculpture was led to the production of colossal figures

by preference. The work occupied him twelve years, it is said, and the finished statue stood seventy cubits high. It stood near the harbor, but at what point is not certain. When, and from what grounds the belief arose that it had stood across the entrance to the harbor, with a beacon light in its hand and ships passing between its legs, is not known, but the belief was current as early as the sixteenth century. M. Benndorf has recently endeavored to trace it to a mistaken reading of a Greek epigram on the Colossus, and his conjecture seems probable. The statue was thrown down by an earthquake about the year 224 B.C., that is about fifty-six years after its erection. Then, after lying broken for nearly 1,000 years, it is said, the pieces were bought by a Jew, and probably reconverted into instruments of war. The fragments were said to have made 4,000 camel loads.

COLSTON, EDWARD (1639–1721), famous philanthropist and founder of numerous charitable institutions in his native city, Bristol.

COLT, SAMUEL (1814–1862), the inventor of the revolver, was born at Hartford, Connecticut, where his father possessed a manufactory of silks and woollens. At ten years old he left school for the factory, and at fourteen he made a runaway voyage to India, during which he made a wooden model, yet existing, of what was afterwards to be the revolver. On his return he learned chemistry from his father's bleaching and dyeing manager, and traveled over the United States and Canada lecturing on that science. The profits of two years of this work enabled him to continue his researches and experiments. In 1835 he visited Europe, and patented his inventions in London and Paris, securing the American right on his return; and the same year he founded the Patent Arms Company, for the manufacture of his revolvers only. The scheme did not succeed; some use was indeed made of the arms, but they were not generally appreciated; and in 1842 the company became insolvent. No revolvers were made for five years, and none were to be had when Taylor sent from Mexico for a supply. The Government ordered 1,000 from the inventor; but before these could be produced he had to construct a new model, for a pistol of the company's make could nowhere be found. This commission was the beginning of an immense success. The little armory at Whitneyville (New Haven, Connecticut), where the order for Mexico was executed, was soon exchanged for larger workshops at Hartford, the inventor's birthplace. These in their turn gave place (1852) to the enormous factory, doubled in 1861, on the banks of the Connecticut River, whence so many millions of revolvers, with all their appendages, have issued, and whence was sent, for the Russian and English Governments, to Tula and Enfield, the whole of the elaborate machinery devised by Colt for the manufacture of his pistols.

COLUMBA, ST., was born on the 7th of December, 521, and the place of his birth is supposed to have been Gartan, in the county of Donegal. Both on the father's and on the mother's side he was descended from princely families in Ireland, and Conal, king of the Scots in Northern Britain, was his kinsman. Some writers are of opinion that his original name was Crimthan, and that he received the surname of Columba from the dove-like simplicity of his character, but it is more probable that the latter was his baptismal name. He was afterward known as Columbkille, or Columba of the Churches, to distinguish him from others of the same name. Ireland was already famous for the learned men who taught in its numerous monasteries; and Columba studied for some time under one of the most distinguished of these, St. Finian of Moiville. Almost as a

matter of course, under such circumstances, he embraced the monastic life. He was ordained deacon while at Moville, and afterward, when about thirty years of age, was raised to the priesthood. During his residence in Ireland he founded two famous monasteries, one named Dair Calgach, on the banks of Lough Foyle, the other Dair-magh in Leinster, better known by their modern names of Derry and Durrow.

When upward of forty years of age he left his native island, accompanied by twelve disciples, and went on a mission to Northern Britain. Argyll and the neighboring islands were at this time portions of the Christian kingdom of the Scots, and from its sovereign Conal he received the Island of Hy, or Iona, where he fixed his residence. His first task was to erect a church and monastery—humble structures of timber and reeds, according to the fashion of the country and the age. Having spent some years in preparation, he began the great work of his life—the conversion of the heathen kingdom of the Northern Picts. Crossing over to the mainland he proceeded to the residence, on the banks of the Ness, of Brude, king of the Picts. By his preaching, his holy life, and, as his earliest biographers assert, by the performance of miracles, he converted the king and many of his subjects. The precise details, except in a few cases, are unknown, or obscured by exaggeration and fiction; but it is certain that the whole of northern Scotland was converted by the labors of Columba and his disciples, and the religious instruction of the people provided for by the erection of numerous monasteries.

The monastery of Iona was revered as the mother house of all these foundations, and its abbots were obeyed as the chief ecclesiastical rulers of the whole nation of the Northern Picts. There were then neither dioceses nor parishes in Ireland and Celtic Scotland; and by the Columbite rule the bishops themselves, although they ordained the clergy, were subject to the jurisdiction of the abbots of Iona, who, like the founder of the order, were only presbyters. The controversies connected with this subject are well known to the students of ecclesiastical history, and need not here be further adverted to. Similar disputes have existed regarding the doctrines of Columba and his followers. This point also is beyond the range of the present article. It may be sufficient to mention that there is no real difficulty as to their belief in its general features. It was the same as that of the Western Church on the Continent, with which also their ritual agreed except in a few unimportant particulars, such as the precise time of keeping Easter. The confusion in these matters has been chiefly owing to the careless and incorrect identification of the Columbites with the clergy afterward known by the name of Culdees.

Columba was honored by his countrymen, the Scots of Britain and Ireland, as much as by his Pictish converts, and in his character of chief ecclesiastical ruler or primate he gave formal benediction and inauguration to Aidan, the successor of Conal, as king of the Scots. He accompanied that prince to Ireland in 590, and took a leading part in a council held at Drumceat in Ulster, where a controversy was settled which had existed between the king of Ireland and the sovereign of the British Scots. The last years of Columba's life appear to have been spent in Iona. There he was already revered as a saint, and whatever credit may be given to some portions of the narratives of his biographers, there can be no doubt as to the wonderful influence which he exercised, as to the holiness of his life, and as to the love which he uniformly manifested to God and to his neighbor.

In the summer of 597 he knew that his end was ap-

proaching. On June 18, he was assisted to a little hill above the monastery and gave it his farewell blessing; he passed away the same evening.

COLUMBANUS (c. 550-615), an Irish monk, was born in Leinster about the year 550. In consequence of persecution he withdrew into Switzerland, where he preached to the Suevi and Alemanni.

COLUMBIA, the county seat of Boone county, Mo., is chiefly known as the seat of the University of Missouri. This institution, founded in 1840, has 16 professors and about 400 students, and a fine library of 10,000 volumes. Columbia has good railroad and telegraph facilities, two national banks and one savings bank, two colleges, seven churches, and several schools. The manufacturing interests include flouring-mills, distilleries, tobacco factories, and woolen-mills. The city is lighted by gas, and has a population (1890) of 5,500.

COLUMBIA, a city of Lancaster county, Penn., is situated on the east bank of the Susquehanna river, eighty-one miles west of Philadelphia and twelve miles west of Lancaster. It is the terminus of two railroads, and has considerable trade in lumber, which is rafted down the river. Columbia contains two national and three other banks, thirteen churches, twenty schools, and three newspaper offices. Its manufacturing industries include breweries, rolling-mills, oil factories and refineries, railroad iron, steam-engines, machinery, floor, sash, doors, etc. Population, 10,599.

COLUMBIA, the capital of South Carolina, and of Richland county, is a fine city of (1890) 15,353 inhabitants. It lies on the east bank of the Congaree River, just below its junction with the Broad and Saluda, and is 124 miles N.N.W. of Charleston, the principal seaport of the State. It is noted for its salubrity and the natural beauty of its site and surroundings. As the capital and the political center of the State, it has held a position second only in importance to Charleston, and has been the home of many distinguished men. Several public institutions enhance its dignity. Among these are the South Carolina College, founded in 1804, with which the late Professor Francis Lieber was long officially connected, the asylum for the insane, a theological school, the state-house, court-house, etc. It is the terminus of four railroads which connect it with Charleston and the sea-coast, and with points west and north, and is also the head of steamboat navigation on the River Congaree. A fertile agricultural region surrounds it, and it enjoys a fair degree of commercial prosperity. Near the close of the civil war (1865) the Union army of General Sherman entered the city, being feebly opposed by the Confederates. During the Federal occupation, fires were set—whether by invaders or defenders has never been determined beyond doubt—by which many buildings and a large amount of property were destroyed.

COLUMBIA, the county seat of Maury county, Tenn., is situated on the Duck river, forty-five miles southwest of Nashville. It contains a court-house, a national bank and one other bank, an athenæum and a female institute. The manufactures include plows, chairs and other furniture, carriages, and flour, and three weekly papers are published. Pop. 5,000.

COLUMBIA COLLEGE, originally known as King's College, is situated in New York City, and received its first charter in 1754. It is a wealthy institution, and has connected with it schools of law, mineralogy, and medicine, in addition to the classical and mathematical departments.

COLUMBIA, DISTRICT OF, a territory of the United States of America, originally erected under a law of Congress of July, 1790, for the establishment of a permanent seat of government. This law authorized the

acquisition by the United States of a territory not exceeding ten miles square, at the confluence of the Potomac and its eastern branch. A part of the territory thus designated was ceded to the United States by Virginia, and included the city of Alexandria, and a part by Maryland including the city of Georgetown. Outside of these cities the territory was occupied by planters and farmers, as it had been from the latter part of the seventeenth century. By a law of Congress of July, 1846, that portion of the district which had been ceded to the United States by Virginia was ceded back to that State. The present area of the district is sixty-four square miles. Under the law of 1790, three commissioners were appointed to receive the cession of the district, and to lay out the city of Washington and erect the public buildings for the reception of the Federal Government. The corner-stone of the Capitol was laid by Washington, September 18, 1793. On the first Monday of December, 1800, the removal of the government from Philadelphia was effected.

The surface of the district is diversified by hill and dale, is well wooded with oak, maple, chestnut, hickory, and other trees; is productive when well cultivated, and affords at several points extended and beautiful views of the valley of the Potomac. The scenery of Rock Creek, an affluent of the Potomac, is also celebrated for its romantic beauty. The climate is temperate and healthy. In the autumn bilious fevers are sometimes prevalent on the low grounds. The staple product before 1800 was tobacco, the culture of which has of late years been abandoned for grain, Indian corn, hay, fruit and vegetables, all of which are produced in great abundance, and sold at remunerative prices in the markets of Washington and Georgetown. The shad and herring fisheries of the Potomac yield a large revenue.

The district is under the control of Congress, and its municipal affairs are regulated by three commissioners appointed by the President and Senate, by virtue of a law of 1874. The courts are constituted by Act of Congress, and the judges appointed by the President and Senate. By the law of 1874, the municipalities of Georgetown and Washington were abolished, and the elective franchise throughout the district suppressed. The population in 1890 was 230,392.

The Chesapeake and Ohio Canal connects Georgetown, the head of tide-water on the Potomac, with Cumberland, the center of the bituminous coal region of the State of Maryland. It is 180 miles in length, and transports 1,000,000 tons of coal per annum. The District is intersected by the Washington and Metropolitan branches of the Baltimore and Ohio Railway, and by the Baltimore and Potomac Railway, and is connected with the south by rail to Alexandria, the northern terminus of the Virginia railway system. The coal tonnage of the Potomac exceeds 600,000 tons annually from the port of Georgetown, which is the port of entry for the District of Columbia.

Since 1793 the United States Government has expended \$60,000,000 in the erection of public buildings and improvement of public grounds in the district. For each of the years 1873, 1874 and 1875, Congress appropriated over \$2,000,000 as its share of the expenses of the district government. The free schools of the district are maintained at an annual cost of \$400,000. The Columbian University, established by the Baptists in 1821, is a well-endowed and flourishing institution. The Howard University, established for the education of the freedmen, is also well patronized. There are 120 church edifices in the district, of which the Baptists have 25, the Methodists 42, the Roman Catholics 14, the Episcopalians 20, the Presbyterians 14, and the Lutherans 8. The United States navy yard in Wash-

ington is one of the most complete in its appointments of all the dock-yards in the country. For further information see WASHINGTON CITY.

COLUMBIA, BRITISH, the first of the Canadian provinces organized on the Pacific, was admitted into the Dominion in 1871. Including Vancouver's Island, it embraces an area of 233,000 square miles, of bold sea coast, lofty mountain ranges, and rugged picturesque river courses, as well as rich fertile valleys. Unlike the great river system to the east of the Rocky Mountains, the rivers of British Columbia make their way by abrupt rapids and falls, in their comparatively brief courses from the Rocky Mountains to the sea.

British Columbia owes its rise to the status of a province of Canada to the sudden influx of gold-diggers in 1856 and following years. The bed of the Fraser River had been discovered to be a rich auriferous deposit; and all who preferred the lottery-like chances of the diggings to the more laborious but certain fruits of patient industry hastened to this new Eldorado. In a semi-official publication of 1864, it is stated that, in 1860, "Antler, the most important creek, yielded at one time, at the lowest estimate, gold to the value of \$10,000 per day. On one claim \$1,000 worth was taken out of the sluice-boxes as the result of a single day's work." But it was not till 1862 that the unsystematic process of mere surface diggings and washings of nomad adventurers was superseded by sinking shafts and carrying on a regulated system of mining under the direction of experienced engineers. Companies were formed; large capital was invested, and an official report of 1870 states the yield of gold for that year from the mines of Cariboo, Silionet, Lilloet, Columbia, Yale, and Lytton at \$1,333,745, in addition to the large quantities of the precious metal carried out of the province by private adventurers.

As explorations and surveys are carried further into the interior the auriferous regions prove to be widely extended, and rich in their promised yield. Gold has been found over an area of not less than 200 miles, and is readily obtained by the simple processes of the adventurous gold-washer, in the beds of the Fraser, the Thompson, the Peace, and Ominica rivers, or the creeks and tributaries flowing into them. Stickeen river, toward the Alaska frontier, the most recent gold-field, has been successfully worked since 1875, and continues to yield an abundant return. Agricultural laborers soon found that the golden harvest could be secured to themselves by providing for the miners the fruits of the soil. It is probably no exaggeration to estimate the worth of the gold carried out of the province from 1856 to 1875 as not less than \$36,000,000. Much of this might be considered as productive of no direct benefit to the country. It led to the construction of roads, developed the mining districts, encouraged agricultural and general trade, and stimulated the growth of permanent settlements. In 1841 the "Vincennes," ship of the American exploring expedition, entered the Straits of De Fuca; and Dr. Pickering has preserved a vivid picture of the forbidding aspect of rudest savage life which then met his eye. Contrasting the then strange uncultivated scenes of that wild coast with the familiar centers of American civilization on the opposite shores of the same continent, he says, "Scarcely two centuries ago our New England shores presented only scenes like that before me; and what is to be the lapse of the third?" Within less than twenty years thereafter the town of Victoria was rising on Vancouver's Island, and that of New Westminster on the neighboring mainland. The population is now (1890) 100,000.

COLUMBIDÆ, a family of birds, often comprehended under the general English names *dove* and *pigeon*, and forming the genus *Columba* (Lat. pigeon)

of Linnæus. They are generally ranked among gallinaceous birds, but exhibit points of resemblance to the order *Insessores*, and have by some naturalists been constituted into a distinct order, intermediate between these.

COLUMBINE (*Aquilegia*), a genus of plants of the natural order *Ranunculaceæ*, having five colored sepals, which soon fall off, and five petals, each terminating below in a horn-shaped spur or nectary. They are natives of the temperate and colder regions of the Northern Hemisphere. One, the common columbine (*A. vulgaris*), is found in woods, and has long been familiar as an inmate of flower-gardens.

COLUMBIUM, or **TANTALUM** (symbol, Ta), is a rare metal found in the mineral tantalite, obtained from Bodenmais, in Bohemia, and from Sweden.

COLUMBUS, a city of the United States of America, capital of the State of Ohio, in Franklin County, is situated on the Scioto, a tributary of the Ohio, about 100 miles northeast of Cincinnati. It is well laid out on a level site in the midst of an extensive plain, and possesses very broad and handsome streets pleasantly shaded with elm-trees. High Street is its principal thoroughfare, and Capitol Square one of the most spacious of its open areas; while Broad Street, 120 feet wide, is laid out for a stretch of two miles. As the capital of the State it contains the usual public buildings, which are of a higher character than are to be found in other cities of the Union. The Capitol is an imposing edifice built of gray limestone, with a rotunda 150 feet high. It covers an area of 55,936 square feet, and its internal accommodation is most complete. There are also in and around the city the penitentiary, extending over more than ten acres of ground, and accommodating upwards of 1,000 prisoners; the new lunatic asylum, capable of containing 600 patients; the blind asylum, the idiot asylum, the deaf and dumb asylum, the United States arsenal, various hospitals and charitable institutions, a city hall, a county court-house, a county infirmary, the Starling medical college, the Lutheran university, an agricultural and mechanical college, the odd-fellows' hall, and the opera-house. The city possesses a fine park of about forty acres, named in honor of its donor, Dr. Lincoln Goodale, and another of equal extent called the City Park. The grounds of the Franklin County Agricultural Society occupy eighty-three acres, and the gardens of the Columbus Horticultural Society ten. The manufactures of the city are rather miscellaneous, and none of them have as yet developed to any great proportions; flour-mills, engineering works, and factories for agricultural implements, brushes, carriages, harness, files, and furniture are among the chief establishments. Railways radiate from Columbus in all directions; and it has water-communication by means of a branch of the Ohio Canal. The first settlement of Columbus dates from 1812. It became the State capital in 1816. The taxable valuation of real estate in 1889 was \$30,079,250, and of personality \$11,478,160; rate of taxation \$2.25 per \$100; total levy for all purposes, \$935,041. During 1889 1,091 building permits were issued for buildings valued at \$1,756,443. In the same period there were 4,577 real estate transfers, aggregating \$10,096,827. The bank clearings for 1889 amounted to \$131,154,900. The area of the city includes 7,040 acres, of which 195 acres are devoted to parks. There are 178 miles of streets, of which 130 are improved, the outlay for this purpose in 1889 being \$1,013,222. There are 103 miles of cast-iron water mains and 30 miles of street railway, and the water works have a daily capacity of 18,000,000. In 1889 there were 15,747 pupils receiving instruction in the public schools.

The school property was valued at \$1,171,900, and the expenses during the year were \$310,087. Manufacturing statistics show 915 establishments, with an invested capital of \$14,310,277, employing 14,804 hands, paying \$6,368,392 in wages, and producing goods to the value of \$26,075,215 in the year. Population (1890), 88,150.

COLUMBUS, the county seat of Muscogee county, Ga., is situated on the east bank of the Chattahoochee river, 100 miles from Macon and 115 miles from Atlanta. It has railroad transportation over six lines, and four lines of steamers trading to the Gulf ports. Columbus has a water power equal to 40,000 horsepower, which is utilized in part for three cotton mills, in which 2,000 persons are employed. Recent returns show in 1890 forty-three manufactories with a capital of \$6,000,000. More than 100,000 bales of cotton are annually received. Other industries are iron-works, bagging, barrel, clothing and knitting factories, foundries, fertilizing, ice, and machinery works. There are four banks, with an aggregate capital of \$1,600,000 and a surplus of \$875,000. The city is lighted by gas and electricity, has street railways, water works, and fire and police department, and a first-class school system. The bonded debt is \$500,000, and the city tax 1 per cent. Population (1890), 17,303.

COLUMBUS, the county seat of Bartholomew county, Ind., is situated on the White river, forty-two miles from Indianapolis, and has a population (1890) of 6,075. It has two railroads, national and State banks, tanneries, saw-mills, planing mills, woolen factories, and manufactories of agricultural implements. Two weekly newspapers are issued here.

COLUMBUS, the county seat of Platte county, Neb., is situated on Loup Fork, near the Platte river, ninety miles west of Omaha. It is a busy little town of 3,118 inhabitants, and contains a bank, six churches, a high school, and three newspaper offices. It is a station on the Union Pacific railroad, and has considerable shipping trade.

COLUMBUS, CHRISTOPHER, was the eldest son of Dominico Colombo and Suzanna Fontanarossa, and was born at Genoa in 1435 or 1436, the exact date being uncertain. His father was a wool-comber, of some small means, who was yet living two years after the discovery of the West Indies, and who removed his business from Genoa to Savona in 1469. His eldest boy was sent to the university of Pavia, where he devoted himself to the mathematical and natural sciences, and where he probably received instruction in nautical astronomy from Antonio da Terzago and Stefano di Faenza. On his removal from the university it appears that he worked for some months at his father's trade; but on reaching his fifteenth year he made his choice of life, and became a sailor.

In 1470 he arrived at Lisbon, after being wrecked in a sea fight that began off Cape St. Vincent, and escaping to land on a plank. In Portugal he married Felipa Munnis Perestrello, daughter of a captain in the service of Prince Henry, called the Navigator, one of the early colonists and the first governor of Porto Santo, an island off Madeira. Columbus visited the island, and employed his time in making maps and charts for a livelihood, while he pored over the logs and papers of his deceased father-in-law, and talked with old seamen of their voyages, and of the mystery of the western seas. About this time, too, he seems to have arrived at the conclusion that much of the world remained undiscovered, and step by step to have conceived that design of reaching Asia by sailing west which was to result in the discovery of America.

These views he supported with three different arguments, derived from natural reasons, from the theories

of geographers, and from the reports and traditions of mariners. "He believed the world to be a sphere," says Helps; "he under-estimated its size; he over-estimated the size of the Asiatic continent. The farther that continent extended to the east, the nearer it came round toward Spain." And he had but to turn from the marvelous propositions of Mandeville and Aliaco to become the recipient of confidences more marvelous still. The air was full of rumors, and the weird imaginings of many generations of mediæval navigators had taken shape and substance, and appeared bodily to men's eyes. Martin Vicente, a Portuguese pilot, had found, 400 leagues to the westward of Cape St. Vincent, and after a westerly gale of many days' duration, a piece of strange wood, wrought, but not with iron; Pedro Correa, his own brother-in-law, had seen another such waif at Porto Santo, with great canes capable of holding four quarts of wine between joint and joint, and had heard of two men being washed up at Flores, "very broad-faced, and differing in aspect from Christians." West of the Azores now and then there hove in sight the mysterious islands of St. Brandam; and 200 leagues west of the Canaries lay somewhere the lost Island of the Seven Cities, that two valiant Genoese had vainly endeavored to discover. In his northern journey, too, some vague and formless traditions may have reached his ear of the voyages of Biorn and Leif, and of the pleasant coasts of Helleland and Vinland that lay toward the setting sun. All were hints and rumors to bid the bold mariner sail westward, and this he at length determined to do.

The concurrence of some state or sovereign, however, was necessary for the success of this design. The Senate of Genoa had the honor to receive the first offer, and the responsibility of refusing it. Rejected by his native city, the projector turned next to John II. of Portugal. This king had already an open field for discovery and enterprise along the African coast; but he listened to the Genoese, and referred him to a Committee of Council for Geographical Affairs. The council's report was altogether adverse; but the king, who was yet inclined to favor the theory of Columbus, assented to the suggestion of the bishop of Ceuta, that the plan should be carried out in secret and without Columbus's knowledge by means of a caravel or light frigate. The caravel was dispatched, but it returned after a brief absence, the sailors having lost heart, and having refused to venture farther. Upon discovering this dishonorable transaction Columbus felt so outraged and indignant that he sent off his brother Bartholomew to England with letters for Henry VII., to whom he had communicated his ideas. He himself left Lisbon for Spain (1484), taking with him his son Diego, the only issue of his marriage with Felipa Munnis, who was by this time dead. He departed secretly—according to some writers, to give the slip to King John, according to others, to escape his creditors. Three years after (20th March, 1488,) a letter was sent by the king to "Christopher Colon, our especial friend," inviting him to return, and assuring him against arrest and proceedings of any kind; but it was then too late.

Columbus next betook himself to the south of Spain, and seems to have proposed his plan first to the duke of Medina Sidonia (who was at first attracted by it, but finally threw it up as visionary and impracticable), and next to the duke of Medina Celi. The latter gave him great encouragement, entertained him for two years, and even determined to furnish him with the three or four caravels. Finally, however, being deterred by the consideration that the enterprise was too vast for a subject, he turned his guest from the determination he had come to of making instant application at the court of France,

by writing on his behalf to Queen Isabella; and Columbus repaired to the court at Cordova at her bidding.

It was an ill moment for the navigator's fortune. Castille and Leon were in the thick of that struggle which resulted in the final defeat of the Moors; and neither Ferdinand nor Isabella had time to listen. The adventurer was indeed kindly received; he was handed over to the care of Alonso de Quintanilla, whom he speedily converted into an enthusiastic supporter of his theory. He made many other friends, and here met with Beatriz Enriquez, the mother of his second son Fernando.

From Cordova Columbus followed the court to Salamanca, where he was introduced to the notice of the grand cardinal, Pedro Gonzalez de Mendoza, "the third king of Spain." The cardinal, while approving the project, thought that it savored strongly of heterodoxy; but an interview with the projector brought him over, and through his influence Columbus at last got audience of the king. The matter was finally referred, however, to Fernando de Talavera, who in 1487 summoned a junta of astronomers and cosmographers to confer with Columbus, and examine his design and the arguments by which he supported it. The Dominicans of San Estebán in Salamanca entertained Columbus during the conference. The jurors, who were most of them ecclesiastics, were by no means unprejudiced, nor were they disposed to abandon their pretensions to knowledge without a struggle. Columbus argued his point, but was overwhelmed with Biblical texts, with quotations from the great divines, with theological objections; and in a short time the junta was adjourned. In 1489 Columbus, who had been following the court from place to place (billeted in towns as an officer of the king's, and gratified from time to time with sums of money toward his expenses), was present at the siege of Malaga. In 1490 the junta decided that his project was vain and impracticable, and that it did not become their highnesses to have anything to do with it; and this was confirmed, with some reservation, by their highnesses themselves, at Seville.

Columbus was now in despair. He at once betook himself to Huelva, where his brother-in-law resided, with the intention of taking ship for France. He halted, however, at Palos, a little maritime town in Andalusia. At the monastery of La Rabida he knocked and asked for bread and water for his boy Diego, and presently got into conversation with Juan Perez de Marchena, the guardian, who invited him to take up his quarters in the monastery, and introduced him to Garci Fernandez, a physician and an ardent student of geography. To these good men did Columbus propound his theory and explain his plan. Juan Perez had been the queen's confessor; he wrote to her, and was summoned to her presence; and money was sent to Columbus, to bring him once more to court. He reached Granada in time to witness the surrender of the city; and negotiations were resumed. Columbus believed in his mission, and stood out for high terms; he asked the rank of admiral at once, the vice-royalty of all he should discover, and a tenth of all the gain, by conquest or by trade. These conditions were rejected, and the negotiations were again interrupted. An interview with Mendoza appears to have followed; but nothing came of it, and in January, 1492, Columbus actually set out for France. At length, however, on the entreaty of Luis de Santangel, receiver of the ecclesiastical revenues of the crown of Aragon, Isabella was induced to determine on the expedition. A messenger was sent after Columbus, and overtook him at the Bridge of Pines, about two leagues from Granada. He returned to the camp at Santa Fé; and on 17th April, 1492, the agreement between him and their Catholic majesties was signed and sealed.

His aims were nothing less than the discovery of the marvelous province of Cipango and the conversion to Christianity of the Grand Khan, to whom he received a royal letter of introduction. The town of Palos was ordered to find him two ships, and these were soon placed at his disposal. But no crews could be got together, in spite of the indemnity offered to all criminals and broken men who would serve on the expedition, and had not Juan Perez succeed in interesting Martin Alonso Pinzon and Vicente Yañez Pinzon in the cause, Columbus' departure had been long delayed. At last, however, men, ships, and stores were ready. The expedition consisted of the "Santa Maria," a decked ship, with a crew of fifty men, commanded by the admiral in person, and of two caravels, the "Pinta," with thirty men, under Martin Pinzon, and the "Niña," with twenty-four men, under his brother, Vincent Yañez, afterward (1499) the first to cross the line in the American Atlantic. The adventurers numbered 120 souls, and on Friday, 3d August, 1492, at eight in the morning, the little fleet weighed anchor, and stood out for the Canary Islands.

An abstract of the admiral's diary made by the Bishop Las Casas is yet extant, and from it many particulars may be gleaned concerning this first voyage. Three days after the ships had set sail the "Pinta" lost her rudder; the admiral was in some alarm, but comforted himself with the reflection that Martin Pinzon was energetic and ready-witted; they had, however, to put in (August 9) at Teneriffe, to refit the caravel. On the 6th September they weighed anchor once more with all haste, Columbus having been informed that three Portuguese caravels were on the look-out for him. On the 13th September the variations of the magnetic needle were for the first time observed; on the 15th a wonderful meteor fell into the sea at four or five leagues distance. On the 16th they arrived at those vast plains of seaweed called the Sargasso Sea, and thenceforward, writes the admiral, they had most temperate breezes, the sweetness of the mornings being most delightful, the weather like an Andalusian April, and only the song of the nightingale wanting. On the 17th the men began to murmur; they were frightened by the strange phenomena of the variations of the compass, but the explanation Columbus gave restored their tranquility. On the 18th they saw many birds, and a great ridge of low-lying clouds, and they expected to see land. On the 20th they saw two pelicans, and were sure the land must be near. In this, however, they were disappointed, and the men began to be afraid and discontented, and thenceforth Columbus, who was keeping all the while a double reckoning, one for the crew and one for himself, had great difficulty in restraining the men from the excesses which they meditated. On the 25th Alonso Pinzon raised the cry of land, but it proved a false alarm, as did the rumor to the same effect of the 7th October, when the "Niña" hoisted a flag and fired a gun. On the 11th the "Pinta" fished up a cane, a log of wood, a stick wrought with iron, and a board, and the "Niña" sighted a stake covered with dog-roses, "and with these signs all of them breathed, and were glad." At ten o'clock on that night Columbus perceived and pointed out a light ahead, and at two in the morning of Friday, the 12th October, 1492, Rodrigo de Triana, a sailor aboard the "Niña," announced the appearance of what proved to be the New World. The land sighted was an island, called by the Indians, Guanahani, and named by Columbus, San Salvador.

The same morning Columbus landed, richly clad, and bearing the royal banner of Spain. He was accompanied by the brothers Pinzon, bearing banners of the Green Cross, a device of his own, and by great part of the crew. When they all had "given thanks to God, kneeling upon the shore, and kissed the ground with

tears of joy, for the great mercy received," the admiral named the island, and took solemn possession of it for their Catholic majesties of Castille and Leon. At the same time such of the crews as had shown themselves doubtful and mutinous sought his pardon weeping, and prostrated themselves at his feet.

Into the detail of this voyage, of highest interest as it is, it is impossible to go farther. It will be enough to say that it resulted in the discovery of the islands of Santa Maria del Concepcion, Exuma, Isabella, Juanna or Cuba, Bohio, the Cuban Archipelago (named by its finder the Jarden del Rey), the island of Santa Catalina, and that of Hispaniola, now called Hayti, or San Domingo. Off the last of these the "Santa Maria" went aground, owing to the carelessness of the steersman. No lives were lost, but the ship had to be unloaded and abandoned; and Columbus, who was anxious to return to Europe with the news of his achievement, resolved to plant a colony on the island, to build a fort out of the material of the stranded hulk, and to leave the crew. The fort was called La Navidad; forty-three Europeans were placed in charge; and on 16th January, 1493, Columbus, who had lost sight of Martin Pinzon, set sail alone in the "Niña" for the east; and four days afterwards the "Pinta" joined her sister-ship off Monte Christo. A storm, however, separated the vessels, and a long battle with the trade winds caused great delay; and it was not until the 18th February that Columbus reached the Island of Santa Maria in the Azores. Here he was threatened with capture by the Portuguese governor, who could not for some time be brought to recognize his commission. On 24th February, however, he was allowed to proceed; and on the 4th of March the "Niña" dropped anchor off Lisbon. The king of Portugal received the admiral with the highest honors; and on 13th March the "Niña" put out from the Tagus, and two days afterward Friday, 15th March, dropped anchor off Palos.

The court was at Barcelona; and thither, after dispatching a letter announcing his arrival, Columbus proceeded in person. He entered the city in a sort of triumphal procession, was received by their majesties in full court, and, seated in their presence, related the story of his wanderings, exhibiting the "rich and strange" spoils of the new-found lands—the gold, the cotton, the parrots, the curious arms, the mysterious plants, the unknown birds and beasts, and the nine Indians he had brought with him for baptism. All his honors and privileges were confirmed to him; the title of Don was conferred on himself and his brothers; he rode at the king's bridle; he was served and saluted as a grandee of Spain. And, greatest honor of all, a new and magnificent escutcheon was blazoned for him (4th May, 1493,) whereon the royal castle and lion of Castile and Leon were combined with the four anchors of his own old coat-of-arms. Nor were their Catholic highnesses less busy on their own account than on that of their servant. On 3d and 4th May, Alexander VI. granted bulls confirming to the crowns of Castile and Leon all the lands discovered, or to be discovered, beyond a certain line of demarcation, on the same terms as those on which the Portuguese held their colonies along the African coast. A new expedition was got in readiness with all possible dispatch to secure and extend the discoveries already made.

After several delays the fleet weighed anchor on 25th September, and steered westward. It consisted of three great carracks (galleons), and fourteen caravels (light frigates), having on board about 1,500 men, besides the animals and material necessary for colonization. Twelve missionaries accompanied the expedition under the orders of Bernardo Buil, a Benedictine, friar

and Columbus had been directed (29th May, 1493,) to endeavor by all means in his power to Christianize the inhabitants of the islands, to make them presents, and to "honor them much," while all under him were commanded to treat them "well and lovingly," under pain of severe punishment. On 13th October, the ships which had put in at the Canaries, left Ferro; and so early as Sunday, 3d November, after a single storm, "by the goodness of God and the wise management of the admiral," land was sighted to the west, which was named Dominica. Northward from this new-found island the isles of Maria Galante and Guadaloupe were discovered and named; and on the northwestern course to La Navidad those of Montserrat, Antigua, San Martin, and Santa Cruz were sighted, and the island now called Porto Rico was touched at, hurriedly explored, and named San Juan. On 22d November, Columbus came in sight of Hispaniola, and sailing eastward to La Navidad, found the fort burned and the colony dispersed. He decided on building a second fort; and coasting on forty miles east of Cape Haytien, he pitched on a spot where he founded the city and settlement of Isabella.

The character in which Columbus had appeared had till now been that of the greatest of mariners; but from this point forward his claims to supremacy are embarrassed and complicated with the long series of failures, vexations, miseries, insults, that have rendered his career as a planter of colonies and as a ruler of men most pitiful and remarkable.

The climate of Navidad proved unhealthy; the colonists were greedy of gold, impatient of control, and as proud, ignorant, and mutinous as Spaniards could be; and Columbus, whose inclinations drew him westward, was doubtless glad to escape the worry and anxiety of his post, and to avail himself of the instructions of his sovereigns as to further discoveries. In January, 1494, he sent home, by Antonio de Torres, that dispatch to their Catholic highnesses by which he may be said to have founded the West Indian slave trade. He founded the mining camp of San Tomaso in the gold country; and on 24th April, 1494, having nominated a council of regency under his brother Diego, and appointed Pedro de Margarite his captain-general, he put again to sea. After following the southern shore of Cuba for some days, he steered southward, and discovered the island of Jamaica, which he named Santiago. He then resumed his exploration of the Cuban coast, threaded his way through a labyrinth of islets supposed to be the Morant Keys, which he named the Garden of the Queen; and after coasting westward for many days, he became convinced that he had discovered continuous land, and caused Perez de Luna, the notary, to draw up a document attesting his discovery (12th June, 1494,) which was afterward taken round and signed, in presence of four witnesses, by the masters, mariners, and seamen of his three caravels, the "Niña," the "Cardera," and the "San Juan." He then stood to the southeast, and sighted the island of Evangelita, and after many days of difficulties and anxieties, he touched at and named the island La Mona. Thence he had intended to sail eastward, and complete the survey of the Caribbean Archipelago. But he was exhausted by the terrible tear and wear of mind and body he had undergone (he says himself that on this expedition he was three and thirty days almost without any sleep), and on the day following his departure from La Mona, he fell into a lethargy, that deprived him of sense and memory, and had well nigh proved fatal to life. At last, on 29th September, the little fleet dropped anchor off Isabella, and in his new city the great admiral lay sick for five months.

The colony was in a sad plight. Every one was dis-

contented, and many were sick, for the climate was unhealthy and there was nothing to eat. Margarite and Buil had quitted Hispaniola for Spain; but ere his departure, the former, in his capacity of captain-general, had done much to outrage and alienate the Indians. The strongest measures were necessary to undo this mischief; and backed by his brother Bartholomew, a bold and skillful mariner, and a soldier of courage and resource, who had been with Diaz in his voyage round the Cape of Good Hope, Columbus proceeded to reduce the natives under Spanish sway. Alonso de Ojeda succeeded by a brilliant *coup de main* in capturing the cacique Caonabo, and the rest submitted. Five shiploads of Indians were sent off to Seville (24th June, 1495), to be sold as slaves; and a tribute was imposed upon their fellows, which must be looked upon as the origin of that system of *repartimientos* or *encomiendas* which was afterward to work such cruel mischief among the conquered. But the tide of court favor seemed to have turned against Columbus. In October, 1495, Juan Aguado arrived at Isabella, with an open commission from their Catholic majesties, to inquire into the circumstances of his rule; and much contest and recrimination followed. Columbus found that there was no time to be lost in returning home; he appointed his brother Bartholomew "adelantado" of the island; and on 10th March, 1496, he quitted Hispaniola in the "Niña." The vessel, after a protracted and perilous voyage, reached Cadiz on 11th June, 1496. The admiral landed in great dejection, wearing the costume of a Franciscan. Reassured, however, by the reception of his sovereigns, he asked at once for eight ships more, two to be sent to the colony with supplies, and six to be put under his orders for new discoveries. The request was not immediately granted, as the Spanish exchequer was not then well supplied. But, principally owing to the interest of the queen, an agreement was come to similar to that of 1492, which was now confirmed. By this royal patent, moreover, a tract of land in Hispaniola, of fifty leagues by twenty, was made over to him. He was offered a dukedom or a marquisate at his pleasure; for three years he was to receive an eighth of the gross and a tenth of the net profits on each voyage; the right of creating a mayorazgo or perpetual entail of titles and estates was granted him; and on 24th June his two sons were received into Isabella's service as pages. Meanwhile, however, the preparing of the fleet proceeded slowly; and it was not till the 30th May, 1498, that he and his six ships set sail.

From San Lucar he steered for Gomera, in the Canaries, and thence dispatched three of his ships to San Domingo. He next proceeded to the Cape Verde Islands, which he quitted on 4th July. On the 31st of the same month, being greatly in need of water, and fearing that no land lay westward as they had hoped, Columbus had turned his ship's head north, when Alonso Perez, a mariner of the Huelva, saw land about fifteen leagues to the southwest. It was crowned with three hill tops, and so when the sailors had sung the *Salve Regina*, the admiral named it Trinidad, which name it yet bears. On Wednesday, 1st August, he beheld for the first time in the mainland of South America the continent he had sought so long. It seemed to him but an insignificant island, and he called it Zeta. Sailing westward, next day he saw the Gulf of Paria, which was named by him the Golfo de la Balena, and was borne into it at immense risk on the ridge of waters formed by the meeting with the sea of the great rivers that empty themselves, all swollen with rain, into the ocean. For many days he coasted the continent, esteeming as islands the several projections he saw, and naming them accordingly; nor was it until he had

looked on and considered the immense volume of fresh water poured out through the embouchures of the river now called the Orinoco, that he concluded that the so-called archipelago must be in very deed a great continent.

Unfortunately at this time he was suffering intolerably from gout and ophthalmia; his ships were crazy; and he was anxious to inspect the infant colony whence he had been absent so long. And so, after touching at and naming the island of Margarita, he bore away to the northwest, and on the 30th August the fleet dropped anchor off Isabella.

He found that affairs had not prospered well in his absence. By the vigor and activity of the adelantado, the whole island had been reduced under Spanish sway, but at the expense of the colonists. Under the leadership of a certain Roldan, a bold and unprincipled adventurer, they had risen in revolt, and Columbus had to compromise matters in order to restore peace. Roldan retained his office; such of his followers as chose to remain in the island were gratified with *repartimientos* of land and labor; and some fifteen, choosing to return to Spain, were enriched with a number of slaves, and sent home in two ships which sailed in the early part of October, 1499.

Five ship-loads of Indians had been deported to Spain some little time before. On the arrival of these living cargoes at Seville, the queen, the stanch and steady friend of Columbus, was moved with compassion and indignation. No one, she declared, had authorized him to dispose of her vassals in any such manner; and proclamations at Seville, Granada, and other chief places ordered (20th June, 1499), the instant liberation and return of all the last gang of Indians. In addition to this the ex-colonists had become incensed against Columbus and his brothers. They were wont to parade their grievances in the very courtyards of the Alhambra, to surround the king when he came forth with complaints and reclamations, to insult the discoverer's young sons with shouts and jeers. There was no doubt that the colony itself, whatever the cause, had not prospered so well as might have been desired. And, on the whole, it is not surprising that Ferdinand, whose support to Columbus had never been very hearty, should about this time have determined to suspend him. Accordingly on March 21, 1499, Francisco de Bobadilla was ordered "to ascertain what persons had raised themselves against justice in the island of Hispaniola, and to proceed against them according to law." On May 21st the government of the island was conferred on him, and he was accredited with an order that all arms and fortresses should be handed over to him; and on May 26 he received a letter for delivery to Columbus, stating that the bearer would "speak certain things to him" on the part of their highnesses, and praying him "to give faith and credence, and to act accordingly." Bobadilla left Spain in July, 1500, and landed in Hispaniola in October.

Columbus, meanwhile, had restored such tranquility as was possible in his government. With Roldan's help he had beaten off an attempt on the island by the adventurer Ojeda, his old lieutenant; the Indians were being collected into villages and Christianized. Gold-mining was actively and profitably pursued; in three years, he calculated, the royal revenues might be raised to an average of 60,000,000 reals. The arrival of Bobadilla, however, speedily changed the state of affairs into a greater and more pitiable confusion than the island had ever before witnessed. On landing, he took possession of the admiral's house and summoned him and his brothers before him. Accusations of severity, of injustice, of venality even, were poured down on their

heads, and Columbus anticipated nothing less than a shameful death. Bobadilla put all three in irons, and shipped them off to Spain.

Alonso de Villejo, captain of the caravel in which the illustrious prisoners sailed, still retained a proper sense of the honor and respect due to Columbus, and would have removed the fetters; but to this Columbus would not consent. He would wear them, he said, until their highnesses, by whose order they had been affixed, should order their removal; and he would keep them afterward "as relics and as memorials of the reward of his services." He did so. His son Fernando "saw them always hanging in his cabinet, and he requested that when he died they might be buried with him." Whether this last wish was complied with is not known.

A heart-broken and indignant letter from Columbus to Doña Juana de la Torre, the governess of the infante Don Juan, arrived at court before the dispatch of Bobadilla. It was read to the queen, and its tidings were confirmed by communications from Alonso de Villejo, and the alcaide of Cadiz. There was a great movement of indignation; the tide of popular and royal feeling turned once more in the admiral's favor. He received a large sum to defray his expenses; and when he appeared at court, on 17th December, he was no longer in irons and disgrace, but richly appareled and surrounded with friends. He was received with all honor and distinction. The queen is said to have been moved to tears by the narration of his story. Their majesties not only repudiated Bobadilla's proceedings, but declined to inquire into the charges that he at the same time brought against his prisoners, and promised Columbus compensation for his losses and satisfaction for his wrongs. A new governor, Nicolas de Ovando, was appointed in Bobadilla's room, and left San Lucar on 18th February, 1502, with a fleet of thirty ships. The latter was to be impeached and sent home; the admiral's property was to be restored, and a fresh start was to be made in the conduct of colonial affairs. Thus ended Columbus's history as viceroy and governor of the new Indies which he had presented to the country of his adoption.

His hour of rest, however, was not yet come. Ever anxious to serve their Catholic highnesses, "and particularly the queen," he had determined to find a strait through which he might penetrate westward into Portuguese Asia. After the usual inevitable delays his prayers were granted, and on 9th May, 1502, with four caravels and 150 men, he weighed anchor from Cadiz, and sailed on his fourth and last great voyage. He first betook himself to the relief of the Portuguese fort of Arzilla, which had been besieged by the Moors, but the siege had been raised voluntarily before he arrived. He put to sea westward once more, and on 13th June discovered the island of Martinique. He had received positive instructions from his sovereigns on no account to touch at Hispaniola; but his largest caravel was greatly in need of repairs, and he had no choice but to abandon her or disobey orders. He preferred the latter alternative, and sent a boat ashore to Ovando, asking for a new ship and for permission to enter the harbor to weather a hurricane which he saw was coming on. But his requests were refused, and he coasted the island, casting anchor under lee of the land. Here he weathered the storm, which drove the other caravels out to sea, and annihilated the homeward-bound fleet, the richest that had till then been sent from Hispaniola. Roldan and Bobadilla perished with others of the admiral's enemies; and Fernando Colon, who accompanied his father on this voyage, wrote long years afterward, "I am satisfied it was the hand of God, for had they arrived in Spain they had never been punished as their crimes deserved, but rather been favored and preferred."

After recruiting his flotilla at Azua, Columbus put in at Jaquimo and refitted his four vessels; and on 14th July, 1502, he steered for Jamaica. For nine weeks the ships wandered painfully among the keys and shoals he had named the Garden of the Queen, and only an opportune easterly wind prevented the crews from open mutiny. The first land sighted was the islet of Guanaja, about forty miles east of the coast of Honduras. Here he got news from an old Indian of a rich and vast country lying to the eastward, which he at once concluded must be the long-sought-for empire of the Grand Khan. Steering along the coast of Honduras, great hardships were endured, but nothing approaching his ideal was discovered. On 12th September Cape Gracias-á-Dios was sighted. The men had become clamorous and insubordinate; not until the 5th December, however, would he tack about and retrace his course. It now became his intention to plant a colony on the River Veragua, which was afterward to give his descendants a title of nobility; but he had hardly put about when he was caught in a storm which lasted eight days, wrenched and strained his crazy, worm-eaten ships severely, and finally, on the Epiphany, blew him into an embouchure which he named Bethlehem. Gold was very plentiful in this place, and here he determined to found his settlement. By the end of March, 1503, a number of huts had been run up, and in these the adelantado with eighty men was to remain, while Columbus returned to Spain for men and supplies. Quarrels, however, arose with the natives; the adelantado made an attempt to seize on the person of the cacique, and failed; and before Columbus could leave the coast he had to abandon a caravel, to take the settlers on board, and to relinquish the enterprise. Steering eastward, he left a second caravel at Porto Bello; and on May 31st he bore northward for Cuba, where he obtained supplies from the natives. From Cuba he bore up for Jamaica, and there, in the harbor of Santa Gloria, now St. Anne's Bay, he ran his ships aground in a small inlet still called Don Christopher's Cove.

The expedition was received with the greatest kindness by the natives, and here Columbus remained upward of a year awaiting the return of his lieutenant, Diego Mendez, whom he had dispatched to Ovando for assistance. During his critical sojourn here, the admiral suffered much from disease and from the lawlessness of his followers, whose misconduct had alienated the natives and provoked them to withhold their accustomed supplies, until he dexterously worked upon their superstitions by prognosticating an eclipse. Two vessels having at last arrived for their relief from Mendez and Ovando, Columbus set sail for Spain, and after a tempestuous voyage he landed once more at Seville on 7th September, 1504.

As he was too ill to go to court, his son Diego was sent thither in his place, to look after his interests and transact his business. Letter after letter followed the young man from Seville — one by the hands of Amerigo Vespucci. A license to ride on muleback was granted him on 23d February, 1505; and in the following May he was removed to the court at Segovia, and thence again to Valladolid. On the landing of Philip and Juana at Cornña (25th April, 1506,) although "much oppressed with the gout and troubled to see himself put by his rights," he is known to have sent off the adelantado to pay them his duty and to assure them that he was yet able to do them extraordinary service. The last documentary note of him is contained in a final codicil to the will of 1498, made at Valladolid on 19th May, 1506. By this the old will is confirmed; the mayorazgo is bequeathed to his son Diego, and his heirs male, failing these to Fernando, his second son, and failing these to

the heirs male of Bartholomew; only in case of the extinction of the male line, direct or collateral, is it to descend to the females of the family; and those into whose hands it may fall are never to diminish it, but always to increase and ennoble it by all means possible. The head of the house is to sign himself "The Admiral." A tenth of the annual income is to be set aside yearly for distribution among the poor relations of the house. A chapel is founded and endowed for the saying of masses. Beatriz Enriquez is left to the care of the young admiral in most grateful terms. Among other legacies is one of "half a mark of silver to a Jew who used to live at the gate of the Jewry, in Lisbon." The codicil was written and signed with the admiral's own hand. Next day (20th May, 1506,) he died.

He was buried at Valladolid; but his remains were soon after transferred thence to the Carthusian monastery of Las Cuevas, Seville, where the bones of Diego, the second admiral were also laid. Exhumed in 1536, the bodies of both father and son were taken over the sea to Hispaniola (San Domingo), and interred in the cathedral. In 1795-96, on the cession of that island to the French, the august relics were re-exhumed, and were transferred with great state and solemnity to the cathedral of Havana, where they yet remain.

COLUMELLA, LUCIUS JUNIUS MODERATUS, the author of the most complete classical treatise on agricultural affairs, was born at Gades (Cadiz), and belongs to the first century A.D., being contemporary with Seneca.

COLUMN (Lat. *columna*), a pillar or post, usually cylindrical in form, employed for the purpose of supporting a roof, entablature, or other superstructure. As the Doric style of architecture was the earliest of the classical styles, the Doric is naturally the simplest and most severe of the classical columns. In almost all columns the shaft tapers gradually from the bottom to the top, thus imitating the natural growth of a tree, and at the same time conforming to a mechanical rule for obtaining the greatest amount of strength in upright bodies. When in order to support the roof which covered the gallery or other superstructure, a second row of columns was introduced, it was usually of the lighter styles, Ionic or Corinthian, the lower columns being commonly Doric.

COLZA OIL is a non-drying oil obtained from the seeds of *Brassica Napus*, var. *oleifera*, a variety of the plant which produces Swedish turnips. Colza is extensively cultivated in France, Belgium, Holland and Germany; and, especially in the first-named country, the expression of the oil is an important industry. In commerce colza is classed with rape oil, to which both in source and properties it is very closely allied.

COMA, a Greek word used in medicine, to signify a state of more or less profound insensibility, allied to sleep, but differing from natural sleep in its characters, as well as in the circumstances under which it occurs. In coma the patient lies on his back, and is either simply insensible to external impressions, or has a confused and dull perception of them, with restlessness and low delirium. The former kind of coma occurs in apoplexy, epilepsy, and also in many other organic diseases of the brain and its membranes, of which, indeed, it may be said to be the natural termination. It is also seen in narcotic poisoning, and most characteristically in poisoning by opium.

COMACCHIO, a town of Italy, in the province of Ferrara, at the head of a circondario, is situated on a long island near the seaward side of an extensive lagoon in the Adriatic, known as the Valli di Comacchio. The inhabitants are mainly engaged in the manufacture of salt and the prosecution of the fisheries

in the lagoon, which, with its shallow area of 41,600 acres, affords a rich feeding ground for eels and gray mullets. The eels are exported to all parts of Italy. Population, 8,900.

COMANA (frequently called CHRYSE, or AUREA, *i. e.*, the golden, to distinguish it from Comana in Pontus), a city of Cappadocia, in a deep valley of the Anti-Taurus range, through which the River Sarus (Sihun) flows. This city was celebrated in ancient times as the place where the rites of the goddess Mā, the Greek *Enyo*, were celebrated with much solemnity.

COMANA, an ancient city of Pontus in Asia Minor, said to have been colonized from Comana in Cappadocia. It stood on the River Iris (or Tocat-su), not far from its source, and from its central position was a favorite emporium of the Armenian and other merchants. The moon-goddess was worshiped in the city with a pomp and ceremony in all respects analogous to those employed in the Cappadocian city. Large multitudes were attracted to the place by the great annual processions, and the permanent population was increased by the influx of devotees. The slaves attached to the temple alone numbered not less than 6,000. Remains of Comana are still to be seen near a village called Gumenek on the Tocat-su, seven miles from the city of Tocat.

COMANCHES, a tribe of North American Indians, so called by the Spaniards, but known to the French as Padouques, and among themselves as Naiini. They belong to the Shohone family, and when first met by Europeans occupied the regions between the upper waters of the Brazos and Colorado on the one hand and the Arkansas and Missouri on the other. They were brought to nominal submission in 1783 by the Spanish general Anza, who killed thirty of their chiefs; but they again became troublesome, and continued to harass the district of Texas till they were settled in a reservation in the Indian Territory. In 1872 a portion of the tribe, called the Quanhada or Staked Plain Comanches, had to be reduced by military measures. Their total numbers, estimated by President Burnet in 1847 as 10,000 or 12,000, are now reduced to little more than 3,000 or 4,000.

COMAYAGUA, a city of Central America, capital of the republic of Honduras, and of the department of Comayagua, is situated about half way between the Pacific and the Atlantic, on the right bank of the Humuya or Ulua River, and near the southern edge of a wide and fertile valley to which it gives its name. It lies 2,060 feet above the level of the sea; and the valley is shut in by mountains varying in height from 5,000 to 6,000 feet, so that it enjoys a comparatively temperate and equable climate. It is the residence of the president and the seat of the only bishop in Honduras; but the political disturbances of the country have reduced it to a very poor condition. The present city, originally designated Valladolid la Nueva, was founded in 1540 by Alonzo Caceres, who had been instructed to find out an eligible site for a town, midway between the oceans. In 1557 it received the rights of a city, and in 1561 was made a bishop's see. Its prosperity is shown by the fact that at the great revolution of 1827, it had about 18,000 inhabitants. Burned in that year by the monarchical party of Guatemala, it has since suffered during successive contests, more especially in 1872, when it witnessed the defeat of General Medina's army by the allied forces of San Salvador and Guatemala, and in 1873, when it was besieged for about two months. Present population (1890), 12,000.

COMB, a toothed implement for arranging and dressing hair and other fibrous substances. Worsted wools, waste silk, and other long fibers are dressed and prepared for spinning by a process called combing, performed

formerly by hand-combs, but now by an elaborate combing machine. Comb-making is necessarily a prominent and extensive industry, in which a considerable variety of materials are employed, the most common being the horns and hoofs of cattle, tortoise-shell, ivory, boxwood, vulcanite, or hardened Indian-rubber, and to a small extent German silver and other metals. Of these materials horn is by far the most extensively employed, and the working of that substance illustrates all the peculiarities of the craft. The industry is one still extensively prosecuted on a small scale, with all the disadvantages of manual labor and wasteful and tedious processes; but in several large factories very ingenious labor and material-saving machinery is brought into operation.

COMBACONUM, a town of Southern India, in the district of Tanjore, twenty miles from the city of that name and thirty miles from the sea. It is a large town with wide and airy streets, and is adorned with pagodas, gateways, and other buildings of considerable pretension. The great gopura, or gate-pyramid, is one of the most imposing buildings of the kind,—rising in twelve stories to a height of upward of 100 feet, and ornamented with a bewildering profusion of figures of men and animals formed in stucco. Population about 40,000.

COMBE, ANDREW, M. D., was born in Edinburgh, 27th October, 1797. His name holds an honored place in the roll of sanitary reformers. Instead of waiting till disease was developed, he sought its prevention by the adoption of a careful system of hygiene. He served an apprenticeship in a surgery, and in 1817 passed at Surgeon's Hall. He proceeded to Paris to complete his medical studies, and whilst there he investigated phrenology on anatomical principles. He became convinced of the truth of the new science, and, as he acquired much skill in the dissection of the brain, he subsequently gave additional interest to the lectures of his brother George, by his practical demonstrations of the convolutions. He returned to Edinburgh in 1819 with the intention of beginning practice; but being attacked by the first symptoms of pulmonary disease, he was obliged to seek health in the south of France and in Italy during the two following winters. He began to practice in 1823, and by careful adherence to the laws of health he was enabled to fulfill the duties of his profession for nine years. During that period he assisted in editing the *Phrenological Journal* and contributed a number of articles to it, defended phrenology before the Royal Medical Society of Edinburgh, published his *Observations on Mental Derangement* (1831), and prepared the greater portion of his *Principles of Physiology Applied to Health*. The latter work was issued in 1834, and immediately obtained extensive public favor. In 1836 he was appointed physician to Leopold I., king of the Belgians, and removed to Brussels. He had only been there a few months, however, when another severe attack of hæmoptysis warned him that the climate was unsuitable, and would speedily render him unequal to the duties of his position. Scrupulously conscientious in everything, he at once resigned. The king and Baron Stockmar persuaded him to remain a few weeks longer in the hope that he might recover; but they were disappointed. He continued, however, to hold the position of consulting physician to his majesty. In Edinburgh he proceeded to work with renewed energy; he published his *Physiology of Digestion*, and resumed practice as a consulting physician, his advice being eagerly sought by old and new patients and by his professional brethren. In 1838 he was appointed one of the physicians extraordinary to the queen in Scotland. Two years later he completed his *Physiological and Moral*

Management of Infancy, which he believed to be his best work, and it was his last. He suffered at intervals from extreme weakness, and in 1842 the symptoms became alarming. His latter years were mostly occupied in seeking at various health resorts some alleviation of his disease; he spent two winters in Madeira, and tried a voyage to the United States, but was compelled to return within a few weeks of the date of his landing at New York. He went on a visit to a nephew at Gorgie, near Edinburgh, and there he died on the 9th August, 1847. His last literary effort was a paper on ship-fever, which was published in the *Times* after his death; its principal suggestions have been carried out by the Act 12 and 13 Vict. c. 23. His biography, written by George Combe, was published in 1850.

COMBE, GEORGE, was born in Edinburgh, 21st October, 1788. As the first advocate in England of the phrenological doctrines of Gall and Spurzheim, and as the author of *The Constitution of Man Considered in Relation to External Objects*, he attracted much attention in Britain, on the Continent, and in America. In 1804 he entered a lawyer's office as an apprentice, and applied himself diligently to the acquirement of the details of his profession. In 1812 he obtained his commission as writer to the signet, and, soon after, that of notary public. His shrewdness and conscientiousness in dealing with clients speedily obtained for him a degree of practice which exceeded his expectations. In 1815 the *Edinburgh Review* contained an article on Gall and Spurzheim's system of "craniology," which the reviewer denounced as "a piece of thorough quackery from beginning to end." Combe laughed like others at the absurdities of this so-called new theory of the brain, and thought that it must be finally exploded after such an exposure; and when Dr. Spurzheim delivered lectures in Edinburgh, in refutation of the statements of his critic, Combe considered the subject unworthy of serious attention. He was, however, invited to a friend's house where he saw Spurzheim dissect the brain, and he was so far impressed by the demonstration that he attended the second course of lectures. Proceeding to investigate the subject for himself, he became satisfied, after two years of study and observation, that the fundamental principles of phrenology were true—namely, "that the brain is the organ of mind; that the brain is an aggregate of several parts, each subserving a distinct mental faculty; and that the size of the cerebral organ is *cæteris paribus*, an index of power or energy of function." He had moved slowly at first; he now pursued his investigations with enthusiasm. He compared the known characteristics of friends with their phrenological developments; he studied anatomy; he visited schools, prisons, and large manufactories; and he became more and more satisfied that he was approaching a truth which would be of great value to humanity. He requested his brother, Dr. Andrew Combe—who was at that time a medical student in Paris—to give particular attention to the dissection of the brain, in order to be prepared to support or to condemn the new theories on anatomical principles. In 1817 his first essay on phrenology was published in the *Scots Magazine*; and a series of papers on the same subject appeared soon afterward in the *Literary and Statistical Magazine*; these were collected and published in 1819 in book form as *Essays on Phrenology*. His friends became alarmed by his public advocacy of a cause which was the laughing-stock of all men of reputation, and warned him that it would be the ruin of his professional prospects. He was not diverted from his course, and he had the satisfaction of finding his business increase; for the many who laughed at his hobby or regretted it, still recognized his assiduity in attending

to the affairs of his clients. The *Essays* gave an extraordinary impetus to the new science; friends and foes became numerous; a phrenological society was founded; the *Phrenological Journal* was established, and was published quarterly for twenty years; a volume of *Phrenological Transactions* was issued; and Combe's first work developed into *A System of Phrenology* in two large volumes, of which five editions have been published. By his lectures and writings he attracted public attention to the subject on the Continent and in America, as well as at home; and a long discussion with Sir William Hamilton in 1827–28 excited general interest.

The publication of his most popular work, *The Constitution of Man*, was determined upon after serious deliberation. He had circulated private copies amongst his friends, several of whom regarded the principles of the essay as dangerous to society and urged him to suppress it. The principle on which he based his argument was that all the laws of nature were in harmony with each other, and that man would best fulfil God's will, and attain the greatest happiness for himself, by discovering those laws and obeying them. He saw nothing irreligious in this principle; he believed that on the contrary it supplied a philosophic basis to religion.

Having received numerous invitations to visit America, he proceeded thither in 1838, and about two years were occupied in lecturing in the principal States on phrenology, education, and the treatment of the criminal classes. On his return in 1840 he published his *Moral Philosophy*, and in the following year his *Notes on the United States of North America*. In 1842 he delivered, in German, a course of twenty-two lectures in the university of Heidelberg—being the first Englishman who had ventured to lecture there in the national language. But the effort resulted in an illness which prostrated him for some time. He continued to travel much on the Continent—inquiring into the management of schools, prisons, and asylums. The commercial crisis of 1855 elicited his remarkable pamphlet on *The Currency Question*. The culmination of the religious thought and experience of his life is contained in his work *On the Relation between Science and Religion*, first publicly issued in 1857, and now in its fifth edition. Writing pamphlets, contributing to periodicals, lecturing, and correcting the new editions of his works, rendered his days busy to the last. He was engaged in revising the ninth edition of the *Constitution of Man* when he died at Moor Park, Farnham, 14th August, 1858. Apart from his position as a phrenologist he earned distinction by his efforts on behalf of education, and by his courage in promulgating certain philosophic truths, which at the time were regarded as subversive of everything good, but are now accepted so entirely as matters of course that his share in obtaining recognition for them is apt to be forgotten.

COMBE, WILLIAM, an anonymous hack writer of great fertility and of some merit, was born at Bristol in 1751, and died in 1823.

COMBERMERE, STAPLETON COTTON, FIRST VISCOUNT, was the second son of Sir Robert Saulsbury Cotton of Combermere Abbey, Cheshire, and was born, 14th November, 1773. As a boy he was distinguished for his vivacity, courage, and fondness of field sports. He was educated at Westminster School, and when only sixteen, obtained through his father a second lieutenancy in the twenty-third Regiment, or Royal Welsh Fusiliers. A few years afterwards (1793) he became by purchase captain of the sixth Dragoon Guards, accompanying them during the disastrous expedition to Flanders against the French. Subsequently, and while yet in his twentieth year, he joined the twenty-fifth

Light Dragoons as lieutenant-colonel, and, while in attendance with his regiment on George III. at Weymouth, he became a great favorite of the king's. In 1796 he went with his regiment to India, and in 1799, under Lord Harris and along with Colonel Wellesley, he distinguished himself in the war with Tippoo Saib, and at the storming of Seringapatam. In 1808, being now major-general, he was sent to the seat of war in Portugal, where he shortly rose to the position of commander-in-chief of cavalry under Wellington, and it was here that he most displayed that personal courage, swiftness of action, and judgment which won for him his fame as a cavalry officer. His share in the battle of Salamanca (July 22, 1812,) was especially marked, and received the personal thanks of Wellington. He was not present at Waterloo, the command which he expected, and bitterly regretted not receiving, having been given to Lord Uxbridge. In 1817 he was appointed governor of Barbados and commander of the West Indian forces. His active military life was concluded in India (1826), where he besieged and took Bhartpur—a fort which twenty-two years previously had defied the genius of Lake, and was deemed impregnable. For this service he was created Viscount Combermere. A long period of peace and honor still remained to him at home. In 1834 he was sworn a privy councillor, and in 1852 he succeeded his old chief as constable of the Tower and lord lieutenant of the Tower Hamlets. In 1835 he received a marshal's baton, and was made G.C.B. He discharged his duties to the last, and died at Clifton in his ninety-second year.

COMBINATIONS among workmen for the purpose of raising their wages, or otherwise altering the terms of their service, were for a long time expressly prohibited by statute. While the state attempted to interfere in the regulation of wages, any combination to defeat the statutory rate would naturally be looked upon with disfavor; and we need hardly be surprised to find that in 1425 a statute was actually passed, making it felony for masons to confederate together to raise their wages above the amount fixed for them by the law. The spirit of such legislation survived to times in which economical principles might be supposed to have been better understood. See TRADES UNIONS.

COMEDY. See DRAMA.

COMENIUS, or KOMENSKY, JOHANN AMOS, a famous writer on education, and the last bishop of the old church of the Moravian and Bohemian Brethren, was born at Comna, in Moravia, in 1592, and died in Amsterdam in 1671.

COMET. The word comet is derived from the Greek *κῶμη*, "hair," a title which had its origin in the hairy appearance often exhibited by the haze or luminous vapor, the presence of which is at first sight the most striking characteristic of the celestial bodies called by this name. The general features of a comet are, a definite point or nucleus, a nebulous light surrounding the nucleus, and a luminous train preceding or following the nucleus. Anciently, when the train preceded the nucleus, as is the case when a comet has passed its perihelion, and recedes from the sun, it was called the beard, being only termed the tail when seen following the nucleus as the sun is approached. This distinction has disappeared from all modern astronomical works, and the name tail is given to the appendage, whatever its apparent position. Neither the tail nor the nucleus is now considered an essential cometary element, but all bodies visible in interplanetary space, which describe orbits round the sun of an extremely elongated form, are classed as comets. There are several plain points of difference between comets and planets. The planets move all in the same direction from east to west, which

is astronomically called "direct motion," but the movements of comets are often from east to west, or retrograde. The orbits of all the planets are confined to a zone of no great breadth on either side of the ecliptic; but the paths of comets cut the ecliptic in every direction, some being even perpendicular to it. The orbits of all the planets are nearly circular, or, more properly speaking, are ellipses of very small eccentricity, some of them being ellipses or elongated closed orbits of various degrees of elongation; others, hyperbolas; while the majority have a form of orbit not differing sensibly from the parabola, which is the limiting form of curve to which both the ellipse and hyperbola approximate under given conditions.

There are twenty known periodical comets, eleven of which have been observed at more than one perihelion passage. These latter have periods in years as follows: Encke's, 3.3; Winnecke's, 5.6; Brorsen's, 5.5; Tempels' I, 6; D'Arrest's, 6.4; Biela's, 6.6; Faye's, 7.4; Tuttle's, 13.8; Halley's, 7.6; Temple's II, 5.2; Swift's, 5.5. The orbits of forty-three comets appear to be ellipses. These are *probably* periodical. The paths of about two hundred can not be distinguished from parabolas. These are *possibly* periodical, as the ellipse, when very eccentric, can not near perihelion be distinguished from a parabola. Only six or seven have orbits possibly hyperbolic.

The quantity of matter in even the largest comet is known to be very small, $\frac{1}{5000}$ or so of that of the earth in a calculated instance, much less, probably, in many others. The nucleus in which most of this is contained, is generally admitted to be a more or less close congeries of meteoric fragments. This is shown by the smallness of its mass as compared with its size, its spectrum and the fact that comets and meteors follow one another in similar orbits. Biela's lost comet is now probably scattered into the meteor stream which pursues its track (see *ante*). The close agreement of cometary and meteoric orbits may appear from the fact that Tempels' comet (1866) has a period of 33.28 years, and the three groups of November meteors, following the same line, periods respectively of 32.25, 33.31, and 33.11 years. Also just as these groups follow one another in procession round the sun, so do the comets above mentioned of 1843, 1880, and 1882. Other systems of mingled comets and meteors are also known, and the spectroscopic researches of Lockyer may be said to have demonstrated that the peculiar spectrum of comets can be produced from meteors. Carbon, hydrogen, and sodium have been shown to enter into the composition of cometary nuclei. A banded spectrum of a hydrocarbon is the usual type, the sodium line only showing when the nucleus is close to the sun, and sweeping rapidly past it in a state of great disturbance. Usually, as the nucleus nears the sun, it appears disturbed; then jets or masses of luminous material, gas or fine dust, are thrown up. Some repulsive force appears to seize these and sweep them out into space with enormous rapidity, producing the splendid phenomena of the tail. The researches of Olbers, Bessel, Norton of Yale college, C. F. Pope, Zollner, and especially Professor Bredichin, late of Moscow Observatory, have gone far to establish the existence of this force and to identify it with electric repulsion.

Comets have been alternately regarded with terror and with welcome in the popular mind. The appearance of Halley's comet in 1456, just as the Turks had become masters of Constantinople, and threatened an advance into Europe, was regarded by Christendom with a superstitious dread, and to the Ave Maria was added the prayer, "Lord save us from the devil, the Turk, and the comet." At Constantinople the occur-

rence of a lunar eclipse at the same time increased the portentousness of the event. The discoveries of science of the magnitude of the space filled by their bodies, and their prodigious velocity, together with the confessed impossibility of always predicting their approach, produced fears of another kind, which have sometimes been, especially in France, extravagantly exaggerated in the public mind. The groundlessness of such alarms, from the extreme improbability of collision with the nucleus, the innocuousness of a contact with the extremely attenuated surrounding matter, and, possibly to the greater part of the world, of the collision of the nucleus itself, will be sufficiently evident from what has been said above. It is certain that already on many occasions some of the attenuated vapor in the tails of comets must have come within the earth's attraction, and been absorbed in its atmosphere. Whether the effect is deleterious or salubrious, or whether it has any perceptible influence at all, is only a matter of speculation. The salubrity of cometary influence is now a popular idea; and the vintages of 1811 and 1858 were favorable seasons, whose produce has been advertised as the "comet wines." It is scarcely worth while, however, to follow further speculation on these subjects, and it has been considered preferable to confine this article chiefly to the description of the general characteristics of comets, and the facts respecting them regarded by science.

COMINES, a town of France, in the department of Nord and the arrondissement of Lille, on the River Lys, which there divides Belgium from France. It is a thriving manufacturing town, with breweries, linen and tape factories, bleachfields, and oil-works.

COMINES, PHILIPPE DE, called the father of modern history, was born at the castle of Comines, France, in 1445, and died at Argenton in 1509. His career was extremely diversified in the early part of his life, he being the companion of kings and princes, and ending his life, after various disgraces, amid the vexations of law-suits and prosecutions.

COMITAN, or COMITLAN, a town of Mexico, in the state of Chiapas, on the River Grijalva, a tributary of the Tabasco, about forty miles southeast of San Cristobal, the capital of the state. The inhabitants derive their subsistence in great measure from agriculture; but they also carry on a smuggling trade with Belize and Guatemala. Population about 10,000.

COMITIA, derived from *con* and *ire*, was employed by the Romans to denote an assembly of the people, called for the purpose of accepting or rejecting some proposition submitted to them by the heads of the state. It was a fundamental principle of the Roman constitution that the supreme power was inherent in the citizens, though it might be delegated by them to hereditary or to elected magistrates. All important matters, however, had to be brought before the sovereign people, who could either ratify or reject, but without discussion, the proposals made to them. Such, at least in theory, and, during the best days of the republic, in practice also, was the function of these popular assemblies.

It is usual to describe the Roman comitia as of three kinds, named from the mode in which the people were organized and in which they voted—the comitia curiata, or assembly of the curiæ; the comitia centuriata, or assembly of the centuries, and the comitia tributa, or assembly of the tribes. To these some add a fourth—the comitia calata (from *calare*, to call); but as this assembly had neither political functions nor a separate organization, it is unnecessary to do more than mention the name.

COMMERCE, in its general acceptation, is the international traffic in goods, or what constitutes the foreign

trade of all countries as distinct from their domestic trade, and it will be convenient in this place to treat it chiefly under this aspect.

Exchange of commodities must have been coeval with human society. However self-depending on their own labor men may have been in the social state, they must soon have had some commodities to exchange with each other, and as stock increased the process would rapidly extend. The liability to failure of crops and to famine must have led to storing of corn in seasons of plenty, and to occasional traffic in the first necessary of life.

The earliest records of commerce on an international scale are to be found in the Hebrew Scriptures. Such a transaction as that of Abraham, for example, weighing down "four hundred shekels of silver, *current with the merchant*," for the field of Ephron, is suggestive of a group of facts and ideas indicating an advanced condition of commercial intercourse—property in land, sale of land, art of mining and purifying metals, the use of silver of recognized purity as a common medium of exchange, and merchandise an established profession, or division of labor. That other passage in which we read of Joseph being sold by his brethren for twenty pieces of silver to "a company of Ishmaelites, coming from Gilead, with their camels bearing spicery, balm, and myrrh to Egypt," extends our vision still farther, and shows us the populous and fertile Egypt in commercial relationship with Chaldea, and Arabians, foreign to both, as intermediaries in their traffic, generations before the Hebrew commonwealth was founded. The allusions in Homer and other ancient writings do not bespeak so advanced a state of trade as those in Genesis. There would seem to have been brass coins among the warriors engaged at the Siege of Troy; and the shields of Homeric heroes cost, some nine oxen, some, more splendid, a hundred oxen, implying much rude magnificence in the form of barter; and yet, probably, not such barter, pure and simple, as is seen in the present day at Kiakhta and Maimatchin, on the Chinese borders of Russia, where chests of tea are exchanged in bulk for Muscovite manufactures of cotton or wool. One might fairly infer, from such archaic touches of the Greek bard, that he had in view an agricultural and pastoral state of society, in which oxen, from their more ready power of purchase than other commodity, had become a rough standard of value; but oxen could not in any state of society be a general medium of exchange, and the history of circulating media, by which exchanges were effected in ancient times, is curiously illustrative of the transition of real into symbolic value. It may be doubted whether the hundred *kesitas* paid by Jacob for a field in Shalem were lambs or pieces of money having lambs as their insignia. The leather money of Carthage, which appears to have been symbolic, was probably much more valuable than the iron money of Sparta, which had an intrinsic worth. Any commodity of the first rank in a public mart might become in small circulable pieces the symbol of so much of that commodity to be delivered to order, and from the constancy of that particular exchange, might be relied upon for the purchase of other commodities. But, generally speaking, the use of gold and silver as instruments of exchange betokens a much higher commercial development than where commodities are priced by a number of oxen, or by rings of brass or iron; and it is on record that the precious metals were thus employed in Arabia and Syria, some 2,000 years B.C., as they, no doubt, had been much anterior to that date both in Egypt, on the one hand, and in the rich and populous plains of the Tigris and Euphrates, on the other.

The first foreign merchants of whom we read, carrying goods and bags of silver from one distant region to

another, were the Southern Arabs, reputed descendants of Ishmael and Esau. Touching in their territory on the south the Red Sea and the right bank of the Nile, and on the north and east the most densely inhabited tracts of Asia, and accustomed in their own interior economy to a free and nomadic life, it may have occurred to the more intelligent and enterprising of these people to enter on this new and adventurous course. Their traffic could only have small beginnings, but they were pioneers of foreign trade, and showed to their richer neighbors that the desert could be pierced. On the other hand, the first navigators and maritime carriers of goods of whom we read were the Phœnicians, the *débris* of the Canaanites overthrown by the conquering Hebrews who, intent on the plain of the Jordan, the hilly slopes of Judea, and the sacred Mount Moriah — the long "promised land," — allowed the dispossessed to settle on a narrow strip of territory along the coast of the Mediterranean. As the clearance proceeded the number of refugees increased, and this outcast race, with one foot on the sea and the other barely on the land, soon outstripped the Edomites and the Ishmaelites in the career of commerce. They founded Tyre and Sidon, of whose opulence there are abundant proofs both in sacred and in profane history. Launching their oared barks on the wave, and steering close along the shore so as to be able to take shelter in the nearest harborage from a storm, they established a securer and cheaper passage between Egypt and Syria than had before been known. The corn and ivory of the Nile and the oil, silk, dyes and spices of Western Asia flowed into their hands. From carriers they became merchants, and to merchandise they added manufactures. They enlarged their ships, grew bolder in navigation, and hoisted sails. In the days of Solomon their vessels had penetrated the Red Sea, and brought back to the great king the wealth of Ophir; but that this land of gold was in India, and that the Phœnician craft crossed the Indian Ocean are conclusions unsupported by evidence. It is certain that they traversed thoroughly the shores of the Mediterranean, both continental and insular, established settlements and colonies in many of the islands of the Greek Archipelago, and, greatest of all, founded Carthage, one of the most noted, and probably the most lamented in its fall, of the commercial cities and empires of the ancient world. The kings of Tyre and Sidon, though often involved in the wars and troubles of the Hebrew monarchy, remained for the most part in friendly alliance with Judah and Israel, to whom they were the most valuable of allies both in a commercial and defensive point of view; and it was their adhesion to the cause of Zedekiah, king of Judah, that brought upon the Tyrians the terrible and all but fatal revenge of Nebuchadnezzar, king of Babylon, 3416 A.M. But while their old city on the shore was being reduced to ashes by a thirteen years' siege, the portion of inhabitants, who clung to the defense, built a new city on an adjacent island, and thus took a new lease of life from these calamities — a process which was destined to be almost identically repeated by Venice many centuries afterward when the Roman empire was falling under the blows of the barbarians. But Phœnicia never fully recovered her former power, and the *coup de grace* was given to this famous commercial republic in the capture of Tyre by Alexander the Great, 250 years after the struggle with Nebuchadnezzar. The whole inhabitants of the once proud city, who had not saved themselves by flight, were either put to the sword, crucified, or sold into slavery. After this event, the name of the Phœnicians disappeared from history, or was soon absorbed in the rising splendor of the commercial cities of Greece — Athens, Corinth, Argos, and their colonies;

of Carthage, still in full fame; and of the great seaport named after its founder Alexander, and built in a spot so well chosen that the city retains its importance to the present hour.

In the commerce of the ante-Christian ages the Jews do not appear to have performed any conspicuous part. Both the agricultural and the theocratic constitution of their society were unfavorable to a vigorous prosecution of foreign trade. In such traffic as they had with other nations they were served on their Eastern borders by Arabian merchants, and on the West and South by the Phœnician shippers. The abundance of gold, silver, and other precious commodities gathered from distant parts, of which we read in the days of greatest Hebrew prosperity, has more the character of spoils of war and tributes of dependent states than the conquest by free exchange of their domestic produce and manufactures.

There are three conditions as essential to extensive international traffic as diversity of natural resources, division of labor, accumulation of stock, or any other primal element — (1) means of transport, (2) freedom of labor and exchange, and (3) security; and in all these conditions the ancient world was signally deficient.

The great rivers, which became the first seats of population and empire, must have been of much utility as channels of transport, and hence the course of human power of which they are the geographical delineation, and probably the idolatry with which they were sometimes honored. Nor were the ancient rulers insensible of the importance of opening roads through their dominions, and establishing posts and lines of communication, which, though primarily for official and military purposes, must have been useful to traffickers and to the general population. But the free navigable area of great rivers is limited, and when diversion of traffic had to be made in roads and tracks through deserts, there remained the slow and costly carriage of beasts of burden, by which only articles of small bulk and the rarest value could be conveyed with any hope of profit. As long as navigation was confined to rivers and the shores of inland gulfs and seas, the oceans were a *terra incognita*, contributing nothing to the facility or security of transport from one part of the world to another, and leaving even one populous part of Asia as unapproachable from another as if they had been in different hemispheres. The various routes of trade from Europe and Northwestern Asia to India, which have been often referred to, are to be regarded more as speculations of future development than as realities of ancient history. The route by the Euxine and the Caspian Sea has probably never in any age reached India. That by the Euphrates and the Persian Gulf is shorter, and was besides the more likely from passing through tracts of country which in the most remote times were seats of great population. There may have been merchants, many, who traded on all these various routes, but that commodities were passed in bulk over great distances is inconceivable. It may be doubted whether in the ante-Christian ages there was any heavy transport over even 500 miles, save for warlike or other purposes, which engaged the public resources of imperial states, and in which the idea of commerce, as now understood, is in a great measure lost.

The advantage which absolute power gave to ancient nations in their warlike enterprises, and in the execution of public works of more or less utility, or of mere ostentation and monumental magnificence, was dearly purchased by the sacrifice of individual freedom, the right to labor, produce, and exchange under the steady operation of natural economic principles, which more than any other cause vitalizes the individual and social energies, and multiplies the commercial resources of com-

munities. Commerce in all periods and countries has obtained a certain freedom and hospitality from the fact that the foreign merchant has something desirable to offer; but the action of trading is reciprocal, and requires multitudes of producers and merchants, as free agents, on both sides, searching out by patient experiment wants more advantageously supplied by exchange than by direct production, before it can attain either permanence or magnitude, or can become a vital element of national life. The ancient polities offered much resistance to this development, and in their absolute power over the liberty, industry, and property of the masses of their subjects raised barriers to the extension of commerce scarcely less formidable than the want of means of communication itself. The conditions of security under which foreign trade can alone flourish equally exceeded the resources of ancient civilization. Such roads as exist must be protected from robbers, the rivers and seas from pirates; goods must have safe passage and safe storage, must be held in a manner sacred in the territories through which they pass, be insured against accidents, be respected even in the madness of hostilities; the laws of nations must give a guarantee on which traders can proceed in their operations with reasonable confidence; and the Governments, while protecting the commerce of their subjects with foreigners as if it were their own enterprise, must in their fiscal policy, and in all their acts, be endued with the highest spirit of commercial honor. Every great breach of this security stops the continuous circulation, which is the life of traffic and of the industries to which it ministers. But in the ancient records we see commerce exposed to great risks, subject to constant pillage, hunted down in peace, and utterly extinguished in war. Hence it became necessary that foreign trade should itself be an armed force in the world; and though the states of purely commercial origin soon fell into the same arts and wiles as the powers to which they were opposed, yet their history exhibits clearly enough the necessity out of which they arose. Once organized, it was inevitable that they should meet intrigue with intrigue, and force with force. The political empires, while but imperfectly developing industry and traffic within their own territories, had little sympathy with any means of prosperity from without. Their sole policy was either to absorb under their own spirit and conditions of rule, or to destroy, whatever was rich or great beyond their borders.

Nothing is more marked in the past history of the world than this struggle of commerce to establish conditions of security and means of communication with distant parts. When almost driven from the land, it often found both on the sea; and often, when its success had become brilliant and renowned, it perished under the assault of stronger powers, only to rise again in new centers and to find new channels of intercourse.

While Rome was giving laws and order to the half-civilized tribes of Italy, Carthage, operating on a different base, and by other methods, was opening trade with less accessible parts of Europe. The strength of Rome was in her legions, that of Carthage in her ships; and her ships could cover ground where the legions were powerless. Her mariners had passed the mythical straits into the Atlantic, and established the port of Cadiz. Within the Mediterranean itself they founded Carthage and Barcelona on the same Iberian peninsula, and ahead of the Roman legions had depots and traders on the shores of Gaul. After the destruction of Tyre, Carthage became the greatest power in the Mediterranean, and inherited the trade of her Phœnician ancestors with Egypt, Greece, and Asia Minor, as well as her own settlements in Sicily and on the European

coasts. An antagonism between the great naval and the great military power, whose interests crossed each other at so many points, was sure to occur; and in the three Punic wars Carthage measured her strength with that of Rome both on sea and land with no unequal success. But a commercial state impelled into a series of great wars has departed from its own proper base; and in the year 146 B.C., Carthage was so totally destroyed by the Romans that of the great city, more than twenty miles in circumference, and containing at one period near a million of inhabitants, only a few thousands were found within its ruined walls. In the same year Corinth, one of the greatest of the Greek capitals and seaports was captured, plundered of vast wealth, and given to the flames by a Roman consul. Athens and her magnificent harbor of the Piræus fell into the same hands sixty years later. It may be presumed that trade went on under the Roman conquests in some degree as before; but these were grave events to occur within a brief period, and the spirit of the seat of trade in every case having been broken, and its means and resources more or less plundered, and dissipated—in some cases, as in that of Carthage, irreparably—the most necessary commerce could only proceed with feeble and languid interest under the military, consular, and proconsular license of Rome at that period. It may be remarked that Tyre, the great seaport of Palestine, having been destroyed by Alexander the Great, Palmyra, the great inland center of Syrian trade, was visited with a still more complete annihilation by the Roman emperor Aurelian within little more than a half a century after the capture and spoliation of Athens. The walls were razed to their foundations; the population—men, women, and children, and the rustics round the city—were all either massacred or dispersed; and the queen Zenobia was carried captive to Rome. Palmyra had for centuries, as a center of commercial intercourse and transit, been of great service to her neighbors, east and west. In the wars of the Romans and Parthians she was respected by both as an asylum of common interests which it would have been simple barbarity to invade or injure; and when the Parthians were subdued, and Palmyra became a Roman *annexe*, she continued to flourish as before. Her relations with Rome were more than friendly; they became enthusiastic and heroic; and her citizens, in a most brave expedition, having inflicted signal chastisement on the king of Persia for the imprisonment of the Emperor Valerian, the admiration of this conduct at Rome was so great that their spirited leader Odenathus, the husband of Zenobia, was proclaimed Augustus, and became co-emperor with Gallienus. But the Palmyrians, on receiving this exalted honor from the Roman senate and people, might have said, “Timeo Danaos dona ferentes,” for it introduced into their secure, palm-covered, and lucrative groves of commerce the bane of imperial politics and ambition; and it was the passionate impulse of Palmyra and her widowed queen to erect an empire of their own that brought down upon them the terrible and enduring retribution of Aurelian. It is obvious that the destruction of Palmyra must not only have doomed Palestine, already bereft of her seaports, to greater poverty and commercial isolation than had been known in long preceding ages, but have also rendered it more difficult to Rome herself to hold or turn to any profitable account her conquests in Asia; and, being an example of the policy of Rome to the seats of trade over nearly the whole ancient world, it may be said to contain in graphic characters a presage of what came to be the actual event—the collapse and fall of the Roman empire itself.

The repeated invasions of Italy by the Goths and

Huns gave rise to a seat of trade in the Adriatic, which was to sustain during more than a thousand years a history of unusual splendor. The Veneti cultivated fertile lands on the Po, and built several towns, of which Padua was the chief. They appear from the earliest note of them in history to have been both an agricultural and trading people; and they offered a rich prey to the barbarian hordes when these broke through every barrier into the plains of Italy. Thirty years before Attila razed the neighboring city of Aquileia, the consuls and senate of Padua, oppressed and terrified by the prior ravages of Alaric, passed a decree for erecting Rialto, the largest of the numerous islets at the mouth of the Po, into a chief town and port, not more as a convenience to the islanders than as a security for themselves and their goods. But every fresh incursion, every new act of spoliation by the dreaded enemies, increased the flight of the rich and the industrious to the islands, and thus gradually arose the second Venice, whose glory was so greatly to exceed that of the first. Approachable from the mainland only by boats, through river passes easily defended by practiced sailors against barbarians who had never plied an oar, the Venetian refugees could look in peace on the desolation which swept over Italy; their warehouses, their markets, their treasures were safe from plunder; and stretching their hands over the sea, they found in it fish and salt, and in the rich possessions of trade and territory which it opened to them, more than compensation for the fat lands and inland towns which had long been their home. The Venetians traded with Constantinople, Greece, Syria, and Egypt. They became lords of the Morea, and of Candia, Cyprus, and other islands of the Levant. The trade of Venice with India, though spoken of, was probably never great. But the crusades of the twelfth and thirteenth centuries against the Saracens in Palestine extended her repute more widely east and west, and increased both her naval and her commercial resources. It is enough, indeed, to account for the grandeur of Venice that in course of centuries, from the security of her position, the growth and energy of her population, and the regularity of her government at a period when these sources of prosperity were rare, she became the great emporium of the Mediterranean — all that Carthage, Corinth, and Athens had been in a former age on a scene the most remarkable in the world for its fertility and facilities of traffic — and that as Italy and other parts of the Western empire became again more settled her commerce found always a wider range. The political history of the Venetian Republic is deeply interesting, were this the proper place to do more than glance at the fortune of commerce and the circumstances and conditions under which it attains its grandest success. The bridge built from the largest of the islands to the opposite bank became the "Rialto," or famous exchange of Venice, whose transactions reached farther, and assumed a more consolidated form, than had been known before. There it was where the first public bank was organized; that bills of exchange were first negotiated, and funded debt became transferable; that finance became a science, and book-keeping an art. Nor must the effect of the example of Venice on other cities of Italy be left out of account. Genoa, following her steps, rose into great prosperity and power at the foot of the Maritime Alps, and became her rival, and finally her enemy. Naples, Gaeta, Florence, many other towns of Italy, and Rome herself, long after her fall, were encouraged to struggle for the preservation of their municipal freedom, and to foster trade, arts, and navigation, by the brilliant success set before them on the Adriatic; but Venice, from the early start she had made, and her command of the sea, had the commercial preëminence.

The state of things which arose on the collapse of the Roman empire presents two concurrent facts, deeply affecting the course of trade — (1) the ancient seats of industry and civilization were undergoing constant decay, while (2) the energetic races of Europe were rising into more civilized forms and manifold vigor and copiousness of life. The fall of the Eastern division of the empire prolonged the effect of the fall of the Western empire; and the advance of the Saracens over Asia Minor, Syria, Greece, Egypt, over Cyprus and other possessions of Venice in the Mediterranean, over the richest provinces of Spain, and finally across the Hellespont into the Danubian provinces of Europe, was a new irruption of barbarians from another point of the compass, and revived the calamities and disorders inflicted by the successive invasions of Goths, Huns, and other Northern tribes. For more than ten centuries the naked power of the sword was vivid and terrible as flashes of lightning over all the seats of commerce, whether of ancient or more modern origin. The feudal system of Europe, in organizing the open country under military leaders and defenders subordinated in possession and service under a legal system to each other and to the sovereign power, must have been well adapted to the necessity of the times in which it spread so rapidly; but it would be impossible to say that the feudal system was favorable to trade, or the extension of trade. The commercial spirit in the feudal, as in preceding ages, had to find for itself places of security, and it could only find them in towns, armed with powers of self-regulation and defense, and prepared, like the feudal barons themselves, to resist violence from whatever quarter it might come. Rome, in her best days, had founded the municipal system, and when this system was more than ever necessary as the bulwark of arts and manufactures, its extension became an essential element of the whole European civilization. Towns formed themselves into leagues for mutual protection, and out of leagues not infrequently arose commercial republics. The Hanseatic League, founded as early as 1241, gave the first note of an increasing traffic between countries on the Baltic and in northern Germany, which a century or two before were sunk in isolated barbarism. From Lubeck and Hamburg, commanding the navigation of the Elbe, it gradually spread over eighty-five towns, including Amsterdam, Cologne, and Frankfort in the south, and Dantzic, Königsberg, and Riga in the north. The last trace of this league, long of much service in protecting trade, and as a means of political mediation, passed away the other year in the erection of the new German empire, but only from the same cause that had brought about its gradual dissolution — the formation of powerful and legal governments — which, while leaving to the free cities their municipal rights, were well capable of protecting their mercantile interests. The towns of Holland found lasting strength and security from other causes. Their foundations were laid as literally in the sea as those of Venice had been. They were not easily attacked whether by sea or land, and if attacked had formidable means of defense. The Zuyder Zee, which had been opened to the German Ocean in 1282, carried into the docks and canals of Amsterdam the traffic of the ports of the Baltic, of the English Channel, and of the south of Europe, and what the seas did for Amsterdam from without, the Rhine and the Maese did for Dort and Rotterdam from the interior. By the Union of Utrecht in 1579 Holland became an independent republic, and for long after, as it had been for some time before, was the greatest center of maritime traffic in Europe. The rise of the Dutch power in a low country, exposed to the most destructive inundations, difficult to cultivate or even to inhabit, affords a

striking illustration of those conditions which in all times had been found specially favorable to commercial development, and which are not indistinctly reflected in the mercantile history of England, preserved by its insular position from hostile invasions, and capable by its fleets and arms to protect its goods on the seas and the rights of its subjects in foreign lands.

The progress of trade and productive arts in the Middle Ages, though not rising to much international exchange, was very considerable both in quality and extent. The republics of Italy, which had no claim to rival Venice or Genoa in maritime power or traffic, developed a degree of art, opulence, and refinement commanding the admiration of modern times; and if any historian of trans-Alpine Europe, when Venice had already attained some greatness, could have seen it 500 years afterward, the many strong towns of France, Germany, and the Low Countries, the great number of their artisans, the products of their looms and anvils, and their various cunning workmanship might have added many a brilliant page to his annals. Two centuries before England had discovered any manufacturing quality, or knew even how to utilize her most valuable raw materials, and was importing goods from the Continent for the production of which she was soon to be found to have special resources, the Flemings were selling their woolen and linen fabrics, and the French their wines, silks, and laces in all the richer parts of the British Islands. It is more commonly, indeed, when commerce is somewhat still, and men, finding their means resting within limited bounds, learn to delight in labor and invention for their own sake apart from their immediate profits, that the quality of work is improved, and a vantage ground is established for more extended operations, than when commerce is in full career, everything buoyant, saleable, and rising in value, and the lust of gain has taken possession of the human spirit. The Middle Ages may be said to have had this result on a large scale. They placed the barbarous populations of Europe under a severe discipline, trained them in the most varied branches of industry, and developed an amount of handicraft and ingenuity which became an always more solid basis for the future. But trade was too walled in, too much clad in armor, and too incessantly disturbed by wars and tumults, and violations of common right and interest, to exert its full influence over the general society, or even to realize its most direct advantages. It wanted especially the freedom and mobility essential to much international increase, and these it was now to receive from a series of the most pregnant events.

The mariner's compass had become familiar in the European ports about the beginning of the fourteenth century, and the seamen of Italy, Portugal, France, Holland, and England entered upon a more enlightened and adventurous course of navigation. The tide of discovery by navigators flowed on without intermission. But the opening of a maritime route to India and the discovery of America, surprising as these events must have been at the time, were a sure prognostic. The Portuguese established at Goa the first European factory in India a few years after Vasco de Gama's expedition, and other maritime nations of Europe traced a similar course. But it was not till 1600 that the English East India Company was established, and the opening of the first factory of the Company in India must be dated some ten or eleven years later. So also it was one thing to discover the two Americas, and another, in any real sense, to possess or colonize them, or to bring their productions into the general traffic and use of the world. Spain following the stroke of the valiant oar of Columbus, found in Mexico and Peru remarkable remains of an ancient though feeble civilization, and a

wealth of gold and silver mines, which to Europeans of that period was fascinating from the rarity of the precious metals in their own realms, and consequently gave to the Spanish colonizations and conquests in South America an extraordinary but unsolid prosperity. The value of the precious metals in Europe was found to fall as soon as they began to be more widely distributed, a process in itself at the period of no small tediousness; and it was discovered further, after a century or two, that the production of gold and silver is much like the production of other commodities for which they exchange, viz., limited and only increased in quantity at a heavier cost, that is only reduced again by greater art and science in the process of production. Many difficulties, in short, had to be overcome, many wars to be waged, and many deplorable errors to be committed, in turning the new advantages to account. But given a maritime route to India and the discovery of a new world of continent and islands in the richest tropical and subtropical latitudes, it could not be difficult to foresee that the course of trade was to be wholly changed as well as vastly extended.

The maritime route to India was the discovery to the European nations of a "new world" quite as much as the discovery of North and South America and their central isthmus and islands. The one was the far, populous Eastern world, heard of from time immemorial, but with which there had been no patent lines of communication. The other was a vast and comparatively unpeopled solitude, yet full of material resources, and capable in a high degree of European colonization. America offered less resistance to the action of Europe than India, China, and Japan; but on the other hand this new populous Eastern world held out much attraction to trade. These two great terrestrial discoveries were contemporaneous; and it would be difficult to name any conjuncture of material events bearing so importantly on the history of the world. The Atlantic Ocean was the medium of both; and the waves of the Atlantic beat into all the bays and tidal rivers of Western Europe. The center of commercial activity was thus physically changed; and the formative power of trade over human affairs was seen in the subsequent phenomena,—the rise of great seaports on the Atlantic seaboard, and the ceaseless activity of geographical exploration, manufactures, shipping, and emigration, of which they became the outlets.

The Portuguese are entitled to the first place in utilizing the new sources of wealth and commerce. They obtained Macao as a settlement from the Chinese as early as 1537, and their trading operations followed close on the discoveries of their navigators on the coast of Africa, in India, and in the Indian Archipelago. Spain spread her dominion over Central and South America, and forced the labor of the subject natives into the gold and silver mines, which seemed in that age the chief prize of her conquests. France introduced her trade in both the East and West Indies, and was the first to colonize Canada and the Lower Mississippi. The Dutch founded New York in 1621; and England, which in boldness of naval and commercial enterprise had attained high rank in the reign of Elizabeth, established the thirteen colonies which became the United States, and otherwise had a full share in all the operations which were transforming the state of the world. The original disposition of affairs was destined to be much changed by the fortune of war; and success in foreign trade and colonization, indeed, called into play other qualities besides those of naval and military prowess. The products of so many new countries—tissues, dyes, metals, articles of food, chemical substances—greatly extended the range of European

manufacture. But in addition to the mercantile faculty of discovering how they were to be exchanged and wrought into profitable trade, their use in arts and manufactures required skill, invention, and aptitude for manufacturing labor, and these again, in many cases, were found to depend on abundant possession of natural materials, such as coal and iron. In old and populous countries, like India and China, modern manufacture had to meet and contend with ancient manufacture, and had at once to learn from and improve economically on the established models, before an opening could be made for its extension. In many parts of the New World there were vast tracts of country, without population or with native races too wild and savage to be reclaimed to habits of industry, whose resources could only be developed by the introduction of colonies of Europeans; and innumerable experiments disclosed great variety of qualification among the European nations for the adventure, hardship, and perseverance of colonial life. There were countries which, whatever their fertility of soil or favor of climate, produced nothing for which a market could be found; and products such as the sugarcane and the seed of the cotton plant had to be carried from regions where they were indigenous to other regions where they might be successfully cultivated, and the art of planting had to pass through an ordeal of risk and speculation. There were also countries where no European could labor; and the ominous work of transporting African negroes as slaves into the colonies—begun by Spain in the first decade of the 16th century, followed up by Portugal, and introduced by England in 1562 into the West Indies, at a later period into New England and the Southern States, and finally domiciled by royal privilege of trade in the Thames and three or more outports of the kingdom—after being done on an elaborate scale, and made the basis of an immense superstructure of labor, property, and mercantile interest over nearly three centuries, had, under a more just and ennobling view of humanity, to be as elaborately undone at a future time. These are some of the difficulties that had to be encountered in utilizing the great maritime and geographical conquests of the new epoch. But one cannot leave out of view the obstacles, arising from other sources, to what might be dreamed to be the regular and easy course of affairs. Commerce, though an undying and prevailing interest of civilized countries, is but one of the forces acting on the policy of states, and has often to yield the place to other elements of national life. It were needless to say what injury the great but vain and purposeless wars of Louis XIV. of France inflicted on that country, or how largely the fruitful and heroic energies of England were absorbed in the civil wars between Charles and the Parliament, to what poverty Scotland was reduced, or in what distraction and savagery Ireland was kept by the same course of events. The grandeur of Spain in the preceding century was due partly to the claim of her kings to be Holy Roman Emperors, in which imperial capacity they entailed intolerable mischief on the Low Countries and on the commercial civilization of Europe, and partly to their command of the gold and silver mines of Mexico and Peru, in an eager lust of whose produce they brought cruel calamities on a newly-discovered continent where there were many traces of antique life, the records of which perished in their hands or under their feet. These ephemeral causes of greatness removed, the hollowness of the situation was exposed; and Spain, though rich in her own natural resources, was found to be actually poor—poor in number of people, poor in roads, in industrial art, and in all the primary conditions of interior development. An examination of the foreign trade of Europe two centuries after the opening of the maritime route to India

and the discovery of America would probably give more reason to be surprised at the smallness than the magnitude of the use that had been made of these events.

Apart from wars, which commerce directly tends to avert, but which often spring from forces more powerful for the time than commercial interest, there remained little more by which a rapid extension of international trade could be impeded, save causes arising from ignorance or impolicy; and among these deserves chiefly to be noticed the prevailing practice of nations, in promoting their own several industries and trade, to wage a subtle war in times of peace on the industries and trade of each other. That foreign imports and even domestic exports, should contribute some quota to the public revenue is in itself a reasonable proposition. The custom-house, which has to register goods coming in and going out, and to exercise an official regulation in the ports, should defray at the least its own expense, like any other necessary mercantile function. The convenience of raising public revenue by duties on imports and exports is amply evinced by the universal adoption of this expedient; and the convenience will always be materially modified by the more or less crude or scientific form which the system of taxation has assumed, by the financial exigency of states, and by the degree in which other objects than those of revenue have been permitted to enter into the general policy. It has been argued with much plausibility that there are certain stages and conditions of some branches of industry, in which it is politic to protect them against unequal competition in their own markets with the more advanced arts and appliances of foreign countries, until they have by this means acquired ability to stand upon their own merits; and this being once admitted, the transition is easy to the general doctrine that, since every nation always finds that there are commodities which other nations can produce much better and cheaper than it can produce them for itself, it is wise and expedient to place the admission of nearly all foreign goods and produce under a custom duty protective of the native industry. The interest of the public revenue is here lost in another line of policy, because protective duties carry the consequence that several parts of a nation have to pay to several other parts more of their own means for what they need than they should have had to pay to the foreigner, and under a system of this kind the sources of public revenue, so far from being increased, are certain of being impaired. On the other hand, there are imports so entirely of foreign origin, and so free from considerations of competition with domestic industry, that a large revenue may be raised upon them in the custom-house without disturbing the freedom or equity of international trade. The immense customs revenue of Great Britain from duties on tea, coffee, and tobacco (duties on wines and foreign spirits may be excluded, since they are set off by excise duties on native liquors) is a remarkable example of the power of levying public revenue in the ports without infringing any commercial or economic principle. The question of tariffs thus appears to be capable of reasonable solution as long as it is kept within the circle of what is permanently expedient to the public revenue. When it passes beyond these bounds it launches into a sea of complicated errors. The idea or self-interest that has force to discourage the imports of foreign commodities by protective duties passes naturally onward to bounties on the export of some favored articles of domestic produce, under which the same practical result is conversely produced, and one part of the nation has to pay in taxes to the state some proportion of the price necessary to effect a sale abroad of the produce of another part of the nation. When bounties are given, they have to be

accompanied with a series of compensations or "drawbacks;" and the confusion has often become so great, as when the export bounty is on the manufactured article and the protective duty on the imported raw material, or as, say, when there is a duty on foreign wool, and woollen goods on export are entitled to a drawback, that the state has been reduced to a dilemma, and anything it did seemed only to make the condition worse. This medley of cross-purposes is increased by the means adopted by parent states on one hand to bolster, on another to monopolize to themselves, the trade of their colonies, and by the elaborate rules of preference and exclusion by which maritime nations have attempted to favor their own ships in the carrying trade of the seas.

It is always critical to assign specific causes for commercial results on a vast scale and over a wide theater, for in such cases there must not only have been a long antecedent preparation of means to enable such rapid and gigantic efforts to be made, but it is certain that many economic causes will be found to have been in concurrent operation, effects themselves becoming causes in turn, and though in apparent conflict, one checking the excess of the other, yet in reality extending and sustaining the general impulse. But three grand characteristics of the period have been adduced with almost common consent as affording an explanation of the phenomena—(1) the adoption of free trade by Great Britain, (2) the Californian and Australian gold discoveries, and (3) steam navigation, railways, telegraphs;—and these may obviously be accepted as the most powerful forces ever brought to bear on the extension of trade in any one age.

The measures by which Sir Robert Peel introduced this great change in the policy of Great Britain were marked by four general objects, merging by practical sequence in the absolute principle of freedom of trade—1st, to remove from the tariff all prohibitions of foreign import, among the chief of which were agricultural live stock, while retaining for a limited period some protective regulation; 2d, to place hundreds of articles of the nature of raw materials of manufacture, and others of less importance, yet useful in the arts, on a footing of entire freedom from customs duty; 3d, to reduce the duties on foreign manufactures which came into competition with home manufactures; and 4th, to repeal the corn laws, admitting foreign grain on a nominal fixed duty, which last involved an equally complete relief to provisions, live stock, agricultural produce of every kind, and to foreign manufactures. When the landlords and farmers were placed in full and direct competition with the world, no class of manufacturers had any excuse left for the slightest shred of protection. All these measures had the appearance more of liberal concessions to foreign nations than of any advantage to home producers; and this is, no doubt, the reason why free trade was so long resisted, and many were unable to see, until the problem was visibly demonstrated, that in liberating commerce, even in developing foreign resources, the most powerful impulse may be given to all the springs of domestic prosperity. The immediate effects of increasing the public revenue—even the customs revenue, which seemed endangered by the abolition of so many duties—in reviving British trade and manufactures, and imparting new life to agriculture itself, were so great that the free trade policy was speedily carried up to its highest points of triumph. The differential duties on foreign and colonial, slave and free labor sugar, were removed; and the navigation laws, in favor of which the greatest prejudice had long existed, were fully conformed to the new policy. The expected influence of so successful an illustration of free trade on

other nations has not yet been realized to any considerable extent. A more liberal system of trade with France and other European countries has only been effected by treaty, which, however mutually advantageous in its results, is in its temporary and provisional character more or less unsatisfactory. It was not enough that Great Britain could say to her neighbors that free trade had worked well, not only for herself, but for them. There was always the ready retort of the protected interests in the respective countries that what was good for England in her somewhat exceptional condition, might not be good, or might even be impossible for them; and here the controversy has rested. But it must be allowed to argue a vast deal for the power of free trade that Great Britain, in the face of so many unreciprocal tariffs, has been able to open an effective market in her ports for amounts of foreign goods and produce which, thirty years ago, would have been deemed fabulous, while at the same time circulating her own commodities in such increasing quantities to all parts of the world. There can be little question that the free commercial policy of this country has been one of the leading springs of the late marvellous extension of international trade.

The effect of the Californian and Australian gold mines has been compared to that of the silver mines of South America at two periods—when their treasures began to be distributed in Europe, and again when the abundance and cheapness of quicksilver increased their productiveness;—but there is one difference at least, viz., that under the greatly more active life of the present age, as compared with the sixteenth and seventeenth centuries, the results of the Californian and Australian gold discoveries were much more rapidly developed than in the other case, and may be said to have passed and been exhausted under the eyes of a single generation. We should thus be better able to judge the effect of sudden, though, as they prove, always temporary increases of the supplies of the precious metals.

The two events in question were almost coincident, and they came when a general extension of trade had already been ten years in progress. The first effect was to produce a great emigration to the countries in which the gold-fields were situated, and this was followed by large exports of goods to the same quarters, which, as usually happens when business falls under speculative impulses out of the ordinary mercantile course, were much overdone, and ended eventually in heavy loss to the shippers. Abundance of labor had been supplied to the gold-fields with unwonted celerity, and as the labor was not unremunerative, and in many cases was even rewarded by large findings of gold, the commotion in emigration, traffic, and shipping was sustained for a considerable time. The coffers of the banks of England and France were soon filled with the new supplies of gold, and these imparted increased confidence to banking operations by which they were as soon redistributed. All this was calculated to give additional impulse and extension to the commercial forces already in motion. There was a new increase of demand for goods; much labor had been transferred from old seats of industry to new fields; and there was rise of wages, and rise of prices. But whether the effects would have been different whatever other produce than gold had been the impelling cause may be much doubted. The effect of increased supplies of the precious metals *per se* on prices is difficult to trace, and is seldom detected by the keenest analysis, more especially in a period of extending trade and industry, for the precious metals are then more quickly absorbed, and many causes, of which their increased supply is but one and the least, are operating on the value of goods. The Californian and Australian

mines remain productive, though in much diminished amount, and their most permanent effect on commerce will probably be found to be that they helped materially to build California into a populous State, which has become one of the largest granaries of wheat in the world, and to make the Australian colonies a growing empire, of such varied resources that its foreign trade, greatly as it had increased in the first ten years of the gold discoveries, continued to increase in the subsequent ten years, when its produce of gold had declined into a subordinate interest.

Immensely important as the creative and stimulating effect of the free trade of Britain and the Californian and Australian gold discoveries had been, they pale before a mighty service that remains to be noticed, and which, in the prolific force of a world aroused to commerce, they had all the while been carrying forward in their train.

There is little need of remark in this place on steamships, railways, and telegraphs — equally marvelous in their power of facilitating commerce and in the rapidity of their construction to this end — beyond a simple indication.

The international lending of capital has attained such magnitude, and is so often lost sight of in the study of more visible imports and exports, as to require careful consideration, not only on the part of the immediate lenders and borrowers, but of all who are engaged in foreign trade. Capital, in its monetary form of transfer, is as much a commodity as the more usual articles of trade; and when a country lends large sums to another country, the same effects are produced on the rates of exchange for the time being, and more protractedly on the general course of import and export, as would be produced by an equivalent amount of goods exported by the borrowing country.

COMMERCE, a town of France in the department of Meuse, at the head of an arrondissement, on the left bank of the Meuse, twenty miles east of Bar-le-Duc. Population, 4,191.

COMMINATION is from the Lat. *comminor*, to threaten, and is the name given to a penitential service used in the primitive church. See Bingham's *Antiquities*.

COMMISSARIAT is a name for the organized system whereby armies are provided with food, and daily necessities other than those connected with actual warfare.

COMMISSION, a writing, in the form of a warrant or letter-patent (see **PATENT**), authorizing one or more persons to perform duties or exercise powers belonging to another, or to others. Another class of commissions are those granted by Congress or State authority to a body of persons, either to inquire into the condition of certain institutions or branches of the public service, or to exercise certain powers, or execute certain measures for their improvement. Persons holding such commissions, deriving no other title from their appointment, are called commissioners—such as, for instance, the Inter-State Commerce Commission.

COMMISSION MERCHANT, or **AGENT**, is a person employed to sell goods consigned or delivered to him by another who is called his principal, for a certain percentage, commonly called his commission.

COMMITMENT is the imprisonment of any person by warrant or order. When commitment is by warrant of a magistrate after examination and before trial, the confinement of the accused, being for safe custody and not for punishment, is regulated by special statutes as to diet, optional employment, visits, etc. Commitment may be for trial or further examination.

COMMITTEE (Fr. *comite*), a portion, generally

consisting of not less than three members, selected from a more numerous body, to whom some special act to be performed, or investigation to be made, is committed. But though a committee usually consists of several members of the body by which it is appointed, it may consist of one member, or, what is more frequent, of the whole members acting in a different capacity from that which usually belongs to them.

COMMODORE, in the navy of the United States, ranks between a rear-admiral and a captain, the grade corresponding with that of a brigadier-general in the army. A commodore usually commands a squadron of ships on special service.

COMMODUS, **LUCIUS AURELIUS**, emperor of Rome from 180 to 192, was born at Lanuvium in 161, and was the son of the philosopher-emperor M. Aurelius, and of the younger Faustina. His teachers were carefully selected; but all the pains bestowed on his education did not prevent him from choosing the society and the pursuits of profligate favorites and common gladiators. Blind to his faults, however, his father gave him the title of emperor when not more than fifteen years of age; and at sixteen he shared the imperial power in every department except the chief pontificate. On the death of Aurelius, whom he had accompanied in the war against the Germans, Commodus hastily concluded peace, and hurried back to the pleasures of the capital (180). From the first he gave himself up to unbounded license; but for some years his vices were all private. In 183, however, he was attacked, at the instigation of his sister Lucilla, by an assassin, who declared that he struck in the name of the senate; and the nobility paid the penalty by the murder of any of that rank who afterwards aroused the slightest suspicion in the mind of the emperor. At the same time the vulgar vanity of Commodus manifested itself in a manner that exposed him to the scorn of the meanest citizen. No longer content with showing his strength and dexterity to a little group of favorites in the palace, he presented himself as a spectacle in the arena, and, carefully protected from serious danger, displayed his skill by shooting hundreds of wild animals, and by meeting in fight hundreds of gladiators. He called himself the Roman Hercules, and commanded that he should be worshiped as such. Plots against his life naturally began to spring up. That of his favorite Perennis was discovered in time. The next danger was from the people, who were infuriated by the dearth of corn. The mob repelled the prætorian guard, but the execution of the hated minister, Cleander, quieted the tumult. The attempt also of the daring highwayman Maternus to seize the empire was betrayed; but at last Eclectus, the emperor's chamberlain, Lætus, the prefect of the prætorians, and his mistress Marcia, finding their names on the list of those doomed to death, united to destroy him. He was poisoned, and then strangled by a wrestler named Narcissus, on the 31st December, 192, in the thirty-second year of his age. It was said that he had intended to disgrace the office of consul by taking the auspices at the commencement of a new year of office, not in the consular robe but in the garb of a secutor, and surrounded, not by the senate, but by a band of gladiators. His guards alone, accustomed to his lavish bounty, regretted his death; and Pertinax, being chosen by the conspirators, was allowed quietly to succeed him.

COMMON LAW, like civil law, is a phrase with many shades of meaning, and it is probably safest to define it with reference to the various things to which it is opposed. It is contrasted with statute law, as law not promulgated by the sovereign body; with equity, as the law prevailing between man and man, unless when the court of Chancery assumes jurisdic-

tion; and with local and customary law, as the general law for the whole realm, tolerating variations in certain districts and under certain conditions. It is also sometimes contrasted with civil, or canon, or international law, which are foreign systems recognized in certain special courts only and within limits defined by the common law. As against all these contrasted kinds of law, it may be described broadly as the universal law of the realm, which applies wherever they have not been introduced, and which is supposed to have a principle for every possible case. Occasionally, it would appear to be used in a sense which would exclude the law developed by, at all events, the more recent decisions of the courts.

The English common law, with language, is the inherited possession of the people of the United States. Common law, as understood in the U. S. consists of that mass of customs which were handed down through successive generations of the English people "time whereof the memory of man runneth not the contrary." These customs in time came to be recognized and confirmed by the decisions of courts, until these decisions came to be recognized as setting forth principles. To these "principles" we refer rather than to the letter of any ancient custom. After the Revolution the American States could have rejected the entire body of common law principles had they so desired, but they kept and adhered to it to the extent that in all the States of the Union except Louisiana—which in like manner inherited the civil law of Spain—there exists a code of law in full force and effect before any statutes whatever have been passed by the legislature, and which remains in effect until abrogated by a statute containing provisions locally at variance with the ancient law. But there is no common law of the United States as distinguished from that of the separate States. The Constitution is the measure of the powers of all departments organized under it. All laws of Congress are statute laws, and though it may by enactment adopt the rules of the common law as to given cases within its jurisdiction, still the basis of the law is the statute enacted. But the common law of the States precedes the statute or the constitutional provision which sanctions or annuls it.

As a matter of fact the body of the laws in force in all the States is statute law. The rules of evidence, the laws of marriage and divorce, of the descent of realty, are cases in point.

COMMON PLEAS, COURT OF (*Communia Placita*), was one of the three common law courts at Westminster—the other two being the Queen's Bench and Exchequer. The jurisdiction of all three, together with that of the Court of Chancery, the Court of Probate and Matrimonial Causes, and the Court of Bankruptcy, is vested in the new High Court of Justice, established by the Judicature Act, 1873. One division of that court is called the Common Pleas division, and there all the business which before the Act was "within the exclusive cognizance of the Court of Common Pleas" must still be transacted.

COMMON PRAYER. See LITURGY.

COMMONS. It is a well-known result of the application of the historical method to laws and institutions, that it has reversed many of our leading conceptions of the natural or original forms of property. That the primitive form of property in land was not severalty but commonalty, that land was held, not by individuals, but by communities, and that individual ownership was slowly evolved out of common ownership, are propositions as nearly as possible the opposite of our *a priori* ideas on the subject. The ex-

istence of rights of common is one of the traces of the ancient system still remaining in our law, but its real significance was for a long time obscured by the feudal theories on which the law of real property is based.

The lord would grant certain portions to free tenants on certain rents and services, and these are the freeholders of the manor. His own portion would be cultivated by *villains*, or *serfs*, attached to the soil, and these ultimately developed into the important class of copyholders. There remains the uncultivated and unappropriated land, over which the freeholders had certain rights of common supposed to be incident to their original grant. Within the manor were certain courts (Court Leet, Court Baron, Customary Court), the most important of which is the Court Baron, or assembly of the freeholders, partly judicial and partly administrative. It is regarded by the common law as the inseparable concomitant of a manor, so that if there be no Court Baron there is no manor.

The lord's waste in like manner represents the common waste of the community not appropriated in severalty, and used by all in common for pasturage, etc. The legal theory, however, supposes that the whole organization is created by grant; the lord is the owner of the soil, and the rights of tenants are merely such as he has granted to them out of consideration for rents and services reserved. Whatever has not been so granted belongs as a matter of course to the lord. The rights of common come to be regarded as of the nature of servitudes, exceptional privileges granted over land by its real owner to his tenants.

Rights of common enjoyed by the freeholders of the manor as incident to their tenure are said to be *appendant*, or attached to their holdings. Rights of common not coeval with the original grant, or enjoyed by strangers in respect of land not belonging to the manor at all, are said to be *appurtenant*. Rights claimed irrespectively of land altogether are called rights of common *in gross*. Similar rights in copyholders depend on the *custom* of the manor.

COMMONS, HOUSE OF. See PARLIAMENT, Vol. VIII, p. 4656 *et seq.*

COMMON SCHOOLS. See further Art "EDUCATION." In the United States the common school is at once the greatest glory of the country, and the greatest safeguard of its liberties. The earliest settlers of New England recognized the importance of primary education and made due provision for it. When the northwestern territories were formed it was provided that every sixteenth section of the public lands should be set apart for the maintenance of common schools. The land thus granted amounts to 70,000,000 acres, in addition to which many grants have been made by State governments. Since the close of the Civil War the common school system has been largely developed in the South. It is estimated that over \$100,000,000 per annum is expended on these public schools. In several States attendance at the common schools is compulsory on all children of school age. In addition to the endowments of land furnished by the National and State governments, school taxes are levied in every township, and all American children have the opportunity afforded them to obtain instruction in at least the rudimentary branches of education.

COMMONWEALTH, the style and title of the Government of England under Oliver Cromwell from December 16, 1653, to September 3, 1658, and under his son and successor, Richard Cromwell, until the restoration of Charles II. Various States of the American Union are known as commonwealths, *e. g.*, Massachusetts. The term in its present meaning was used in ancient Rome.

COMMUNE, the smallest administrative division of France, corresponding in its main features to the municipal borough of England. Communes constitute legal corporations of elaborate organization, capable of holding property, contracting debts, and appearing as persons in court. The chief magistrate of a commune is the *maire*, who is assisted by one or more *adjoints*, and a deliberative assembly, called the *conseil municipal*, or municipal council.

COMMUNISM is the name that has been given to the schemes of social innovation which have for their starting-point the attempted overthrow of the institution of private property. It is not to be wondered at that so stupendous an undertaking should have failed, except in a very few instances, in its immediate object. The principle of private property has been called by one who was by no means a blind worshipper of the social condition which has been built upon it, "that primary and fundamental institution on which, unless in some exceptional and very limited cases, the economical arrangements of society have always rested." To attack this primary and fundamental institution indicates a mind so bold as well as so imaginative that it might well be thought that the assaults upon it would be few and far between, limited to a single country or to a single age, or at least to a class of individuals rendered desperate by having nothing to lose by a general social revolution. The opinion that a communist is a man who has no property to lose and who therefore advocates a general redistribution of wealth is very widespread and popular. It is embodied in the well-known lines of the corn-law rhymist:—

"What is a Communist? One who hath yearnings
For equal division of unequal earnings.
Idler or bungler, or both, he is willing
To fork out his penny and pocket your shilling."

The facts connected with the history of communism show that the movements against the institution of private property have taken place in nearly every country, and in almost every age. They have originated with men of such divergent intellectual rank as Plato and Robert Owen, as widely sundered in respect of time, country, and social surroundings as the Essenes, Sir Thomas More, Saint Simon, and Father Rapp. The mere mention of these names goes some way toward the refutation of the popular conception of a communist as a needy adventurer seeking a means to possess himself of the property of others. There may have been some so-called communists attracted to the movement by the hope of being enabled to live on the labor and industry of their neighbors; but such men have never originated any socialistic movement, and their motives have generally been quickly detected by the genuine communists, who have not infrequently adopted very vigorous means to expel such black sheep from their flock. Among the modern leaders of communistic movements who have actually reduced to practice the theoretical schemes of *The Republic* and *Utopia* have been men who have devoted great wealth and rare organizing faculties to the carrying out of their plans for the reconstruction of society. It has been estimated that Robert Owen, during the course of his long life, devoted no less a sum than \$300,000 from his own private fortune to the promotion of communistic schemes; what he sacrificed indirectly to his views on social reform cannot be easily estimated. His faculty for the successful conduct of business was so remarkable that at the early age of twenty six, without a shilling of capital of his own, he was appointed manager of the mills of the Chorlton Company with a salary of \$5,000 a year, besides one-ninth of the profits realized by the company. There can be no doubt that Owen had the personal

qualities which would have enabled him to amass a colossal fortune if his ambition had lain in that direction. The immense pecuniary and personal sacrifices which he made to the cause of communism show that he at least was animated by motives the direct opposite of the selfishness and sloth generally attributed to the advocates of that system. Another leading communist, Saint Simon, was the representative of one of the most ancient families of the French nobility. A career in the army was open to him in which he might easily have satisfied the usual ambition of the class to which he belonged. As a young man he served with distinction through five campaigns.

Many other instances might be given of the disinterestedness of the leaders of communistic schemes. Among American associations one of the most successful as to the number and material prosperity of its members is the society known as the Perfectionists of Oneida and Wallingford. Their founder, John Humphrey Noyes, was the son of a banker, and a man fitted by education and natural gifts to have succeeded in any of the ordinary careers of professional or commercial activity. Whether we look at communism as depicted in the pages of Plato's *Republic* and Sir Thomas More's *Utopia*, or in the practical efforts made to realize these philosophical speculations by such men as Owen and Noyes, we find no justification for the assumption that the movement is one for enabling "idlers and bunglers" to live on the industry and talents of their more energetic and skillful neighbors.

As we are here saying what communism is not, rather than endeavoring to define what it is, this is perhaps the right place to state that communism, meaning thereby community of goods and the abolition of private property, has no connection with the doings of the *Commune* of Paris which was overthrown in May, 1871. The French word *Commune* is a household word in France for "township" or "corporation." Every town and village in France has its *Commune* or municipality. In nearly every town and village there is corporate property called *Les Biens Communaux*, and this property is vested in the corporation or *Commune*. The similarity, however, of the French word for corporation to ours for expressing the doctrine of community of goods, has led to a great amount of misconception and confusion, even among writers who are generally careful and well informed. The revolution of the *Commune* was entirely political; it propounded no new economic theories. It arose from a joint effort of many sections of extreme politicians who were agreed in nothing but in demanding the establishment of (1) a democratic republic, and (2) the communal (or corporate) independence of Paris. Only about seven out of the seventy members of the Communal Government were communists in the economic sense, and these seven were among the most thoughtful and least violent of the party to which they belonged. They never had an opportunity of giving any official sanction to their communistic views, and they were gradually thrust on one side by their more violent and unscrupulous comrades. This is therefore not the place to attempt anything like an account of the brief reign of the *Commune*, which indeed belongs to the history of Paris. It is sufficient to state that its doings were not even tinged with communism in the economic sense of the word.

Communistic schemes have found advocates in almost every age and in many different countries. The foremost men, both of thought and action, have from time to time been attracted by them. They have been so various in scope, and the amount of detail with which they are described by their authors is so considerable, that it is difficult to get at the underlying principle

which is common to them all. It must be remembered that the philosophic communism of Plato and More has been adapted to the wants of actual daily life by rough German peasants and Lancashire operatives; and though of course the actual has differed a good deal from the ideal commune, yet their resemblance is, under the circumstances, very much more striking than their divergence. The one thing that is shared by all communists, whether speculative or practical, is deep dissatisfaction with the economic conditions by which they are surrounded. In Plato's *Republic* the dissatisfaction is not limited to merely economic conditions. In his examination of the body politic there is hardly any part which he can pronounce to be healthy. He would alter the life of the citizens of his state from the very moment of birth. Children are to be taken away from their parents and nurtured under the supervision of the state. The old nursery tales, "the blasphemous nonsense with which mothers fool the manhood out of their children," are to be suppressed. Dramatic and imitative poetry are not to be allowed. Education, marriage, the number of births, the occupations of the citizens are to be controlled by the guardians or heads of the state. The most perfect equality of conditions and careers is to be preserved; the women are to have similar training with the men, no careers and no ambition are to be forbidden to them; the inequalities and rivalries between rich and poor are to cease, because all will be provided for by the state. Other cities are divided against themselves. "Any ordinary city, however small, is in fact two cities, one the city of the poor, the other of the rich, at war with one another." But this ideal state is to be a perfect unit; although the citizens are divided into classes according to their capacity and ability, there is none of the exclusiveness of birth, and no inequality is to break the accord which binds all the citizens, both male and female, together into one harmonious whole. The marvelous comprehensiveness of the scheme for the government of this ideal state makes it belong as much to the modern as to the ancient world. Many of the social problems to which Plato draws attention are yet unsolved, and some are in process of solution in the direction indicated by him. He is not appalled by the immensity of the task which he has sketched out for himself and his followers. He admits that there are difficulties to be overcome, but he says, in a sort of parenthesis, "Nothing great is easy." He refuses to be satisfied with half measures and patchwork reforms.

Sir Thomas More's *Utopia* has very many of the characteristics of the *Republic*. There is in it the same wonderful power of shaking off the prejudices of the place and time in which it was written. The government of Utopia is described as founded on popular election; community of goods prevailed, the magistrates distributed the instruments of production among the inhabitants, and the wealth resulting from their industry was shared by all. The use of money and all outward ostentation of wealth were forbidden. All meals were taken in common, and they were rendered attractive by the accompaniment of sweet strains of music, while the air was filled by the scent of the most delicate perfumes. More's ideal state differs in one important respect from Plato's. There was no community of wives in Utopia. The sacredness of the family relation and fidelity to the marriage contract were recognized by More as indispensable to the well-being of modern society. Plato, notwithstanding all the extraordinary originality with which he advocated the emancipation of women, was not able to free himself from the theory and practice of regarding the wife as part and parcel of the property of her husband. The fact,

therefore, that he advocated community of property led him also to advocate community of wives. He speaks of "the possession and use of women and children," and proceeds to show how this possession and use must be regulated in his ideal state. Monogamy was to him mere exclusive possession on the part of one man of a piece of property which ought to be for the benefit of the public. The circumstance that he could not think of wives, otherwise than as the property of their husbands, only makes it the more remarkable that he claimed for women absolute equality of training and careers. The circumstance that communists have so frequently wrecked their projects by attacking marriage and advocating promiscuous intercourse between the sexes may probably be traced to the notion which regards a wife as being a mere item among the goods and chattels of her husband. It is not difficult to find evidence of the survival of this ancient habit of mind. "I will be master of what is mine own," says Petruchio. "She is my goods, my chattels."

The Perfectionists of Oneida, a well-known communistic society in the United States which has put into practice community of wives, or, as they call it, complex marriage, justify their extraordinary social system by affirming that there is "no intrinsic difference between property in persons and property in things; and that the same spirit which abolished exclusiveness in regard to money would abolish, if circumstances allowed full scope to it, exclusiveness in regard to women and children." It is this notion of a wife as property that is responsible for the wild opinions communists have often held in favor of a community of wives and the break-up of family relations. If they could shake off this notion and take hold of the conception of marriage as a contract, there is no reason why their views on the community of property should lead them to think that this contract should not include mutual fidelity and remain in force during the life of the contracting parties. It was probably not this conception of the marriage relation so much as the influence of Christianity which led More to discountenance community of wives in Utopia. It is strange that the same influence did not make him include the absence of slavery as one of the characteristics of his ideal state. On the contrary, however, we find in Utopia the anomaly of slavery existing side by side with institutions which otherwise embody the most absolute personal, political, and religious freedom. The presence of slaves in Utopia is made use of to get rid of one of the practical difficulties of communism, viz., the performance of disagreeable work. In a society where one man is as good as another, and the means of subsistence are guaranteed to all alike, it is easy to imagine that it would be difficult to insure the performance of the more laborious, dangerous, and offensive kinds of labor. In Utopia, therefore, we are expressly told that "all the uneasy and sordid services" are performed by slaves. The institution of slavery was also made supplementary to the criminal system of Utopia, as the slaves were for the most part men who had been convicted of crime; slavery for life was made a substitute for capital punishment.

In many respects, however, More's views on the labor question were vastly in advance of his own time, and indeed of ours. He repeats the indignant protest of the *Republic* that existing society is a warfare between rich and poor. "The rich," he says, "devise every means by which they may in the first place secure to themselves what they have amassed by wrong, and then take to their own use and profit, at the lowest possible price, the work and labor of the poor. And so soon as the rich decide on adopting these devices in the name of the public, then they become law." One might

imagine these words had been quoted from the programme of the International Society, so completely is their tone in sympathy with the hardships of the poor in all ages. More shared to the full the keen sympathy with the hopeless misery of the poor which has been the strong motive power of nearly all speculative communism. The life of the poor, as he saw it, was so wretched that he said, "Even a beast's life seems enviable!" Besides community of goods and equality of conditions, More advocated other means of ameliorating the condition of the people. Although the hours of labor were limited to six a day there was no scarcity, for in Utopia every one worked; there was no idle class, no idle individual even. The importance of this from an economic point of view is insisted on by More in a passage remarkable for the importance which he attaches to the industrial condition of women. "And this you will easily apprehend," he says, "if you consider how great a part of all other nations is quite idle. First, women generally do little, who are the half of mankind." Translated into modern language his proposals comprise universal compulsory education, a reduction of the hours of labor to six a day, the most modern principles of sanitary reform, a complete revision of criminal legislation, and the most absolute religious toleration. The romantic form which Sir Thomas More gave to his dream of a new social order found many imitators. The *Utopia* may be regarded as the prototype of Campanella's *City of the Sun*, Harrington's *Oceana*, Bacon's *Nova Atlantis*, Defoe's *Essay of Projects*, Fénelon's *Voyage dans l'Ile des Plaisirs*, and other works of minor importance.

It is remarkable that all communists have made a great point of the importance of universal education. All ideal communes have been provided by their authors with a perfect machinery for securing the education of every child. One of the first things done in every attempt to carry communistic theories into practice, has been to establish a good school and guarantee education to every child. The first impulse to national education in the present century probably sprang from the very marked success of Robert Owen's schools in connection with the cotton mills at New Lanark. At a time (1806) when popular education was in the lowest possible condition, Owen, as manager and part owner of the New Lanark Mills, proposed to his partners to spend \$25,000 upon new schools. They not unnaturally objected to an expenditure at that time quite unprecedented: whereupon Owen bought his partners out for \$420,000, and took his own course upon the educational system he had brought forward. It is to be observed that communists have seldom or never relied on their peculiar system alone for the regeneration of society. Community of goods has indeed been their central idea, but they have almost invariably supported it by other projects of less questionable utility. Compulsory education, free trade, and law reform, the various movements connected with the improvement of the condition of women, have found their earliest advocates among theoretical and practical communists. The communists denounce the evils of the present state of society; the hopeless poverty of the poor, side by side with the self-regarding luxury of the rich, seems to them to cry aloud to Heaven for the creation of a new social organization. They proclaim the necessity of sweeping away the institution of private property, and insist that this great revolution, accompanied by universal education, free trade, a perfect administration of justice, and a due limitation of the numbers of the community, would put an end to half the self-made distresses of humanity. Has it never occurred to them that a similarly happy result might be obtained if all these subsidiary reforms were carried out, leaving

the principles of private property and competition to their old predominance in the economic world? If the principles of communism and of private property are to be fairly compared, the comparison must not be between communism as it might be and private property as it is. Communism to be successful requires to be accompanied by important reforms, toward which existing society founded on private property is gradually finding its way. The power which society, as at present constituted, has shown of adapting itself to altered circumstances, and of assimilating by slow degrees the more valuable concomitants of the most revolutionary theories, is strong proof that it does not deserve to be dealt with in the summary manner advocated by the communists.

The condition of England is often pointed at triumphantly by communists of other countries as a complete condemnation of the principles of private property, capitalism, and competition. Lassalle, Marx, Louis Blanc, and others, quote passages from bluebooks, speeches of English statesmen, and writings of other public men in which the condition of the English poor is painted in the darkest colors. In England, they say, for the last half century you have had liberalism in the ascendant; you have had free trade, you have had an energetic and industrious people; the amount of capital eager for employment is practically unlimited; competition has had in nearly every branch of trade the most unrestricted development. In England, if anywhere, we may surely look for the nearest approach to perfection of which the present economic condition of society is capable. Then they proceed to quote passages from parliamentary speeches and official reports, and from English writers on political economy, all bearing witness to the terrible poverty and squalor in which a large proportion of the laboring class in this country spend their lives. M. Louis Blanc quoted from Lord Lytton's *England and the English* a passage showing that the amount and quality of nutriment consumed by the inmates of our jails and workhouses were at that time far in excess of what could be obtained by the wages of the frugal and industrious workingman. Marx cites the following passage from Dr. Hunter's report to the Privy Council (1862-3) on the domiciliary condition of the agricultural laborer:—"The means of existence of the hind are fixed at the very lowest possible scale. What he gets in wages and domicile is not at all commensurate with the profit produced by his work. His means of subsistence are always treated as a fixed quantity; as for any further reduction of his income he may say *nihil habeo, nihil curo*. He is not afraid of the future; he has reached zero, a point from which dates the farmer's calculation. Come what may he takes no interest in either fortune or misfortune."

Whatever may be the value of the remedy which communism suggests for so melancholy a condition as that here described, it is surely useful that the attention of people who have "much goods laid up for many years" should be forcibly arrested, and that they should be made to consider why it is that in the richest country in the world the condition of a large proportion of the laboring classes is so bad that it can hardly be made worse. But at present there is a general conviction that the remedy proposed by communists is one which it would be overwhelmingly difficult to apply, and it is also believed that even if it were applied it would be of doubtful efficacy. Some of the most obvious difficulties associated with the practical adoption of communism have been already adverted to. The social, political, and industrial edifice which is the outcome of centuries of effort and sacrifice would be destroyed by the adoption of communism; it would be

necessary to reconstruct society from its very foundations; and society, like a constitution, is one of those things which cannot be made—it must grow. Then also the efficacy of communism as a remedy for the miserable condition of the poor is, to say the least, doubtful. To what cause may be assigned most of the pauperism, misery, and squalor which hang like a cloud over the lives of so many of the laboring classes? What was the principal agency which brought about calamities like the Irish and the Orissa famines? There can be but one answer to these questions—the pressure of population on the means of subsistence. Many communistic writers have passionately denied this, and have denounced with all the fervor of emotional natures the doctrine laid down by Malthus that population tends to increase faster than subsistence is capable of being increased. No one, however, has attempted to throw doubt on the main fact on which the Malthusian doctrine rests, that everywhere, except in very new countries with a large extent of unoccupied fertile land, checks on population are in active operation. These checks must exist everywhere where population does not increase at its greatest possible speed. Under favorable conditions population sometimes has doubled itself in twenty years. Professor Cairnes has stated that in Ireland the population more than doubled itself in the thirty-eight years between 1767 and 1805. At the rate of increase of the ten years ending 1870, the population of England would double itself in sixty-three years, that of France in 265 years. In France and England, therefore, checks on population are, in a varying degree, in active operation; and the same may be said of all old countries. It is important, however, to inquire into the nature of the checks on population in actual operation. They may be divided into two classes, the first carrying with it nothing but misery and degradation, the second implying a high degree of self-restraint, independence, and foresight. In the first class may be placed war, pestilence, famine, and all the diseases incident to insufficient food and overcrowding. In the second class may be placed prudential restraints on marriage and on the number of births to each marriage, and emigration. Every circumstance which weakens the efficiency of the checks on population comprised in the second class necessarily adds to the force of the checks which we have placed in the first class. In other words, any circumstance which relaxes the force of the prudential checks on population tends to produce the miseries of famine, scarcity, and “starvation diseases.” What would be the effect of communism on the population question? Would it strengthen or weaken the motives which promote a prudential limitation of numbers? Nearly all communists, whether theoretical or practical, have faced in one way or another the population question. The solutions they have offered differ widely. Let us first see what the greatest of theoretical communists have had to say on the subject.

Plato seems to have thought the matter an easy one, and says that the guardians of his state must control the number of births. In Utopia the age at which men and women were allowed to marry was fixed by the state, and all irregularities in defiance of this rule were to be severely punished. The population was also to be kept within certain limits by means of migration, emigration, or colonization. But the theoretical communists of modern times have hardly found words strong enough to express their detestation of the principle that any limitation is desirable to the possible number of births. The writings of Malthus are spoken of as “an outrage on household life.” His language, it is said, “brutalized the purest feelings of domesticity.” M. Louis

Blanc inveighs against the doctrines of political economists, and protests that they are blaspheming God when they say that the prosperity of the poor would be promoted by a limitation of the population. Why are you not logical? he cries. If you were you would recommend that the children of the poor should be put to death! Practical communists have not, however, met the population question in the spirit indicated by such questions. Several of the most successful realizations of communistic life have maintained the strictest celibacy among their members. The Essenes, who practiced community of goods before the Christian era, were a sect composed entirely of men, who lived in seclusion from the world and were in many important respects the prototypes of Christian hermits or monks.

Two of the most important communistic societies of the United States have also made celibacy an essential feature of their system. The “Economites” and “the Shakers,” the societies to which reference is made, have existed since 1805 and 1792 respectively. They are strictly celibate, their numbers being recruited by converts from the outside world and to a slight extent by the adoption of pauper children and orphans from neighboring towns. Other communistic societies maintain the authority of the heads of the society to limit the number of marriages. The Spartan Government, which in many important respects was communistic, exercised the most absolute control over the increase of population. Among the Moravians marriage is not permitted to take place without the consent of the heads of the society, who furnish the newly married couples with a suitable marriage portion. The Separatists, an American community of German origin, established in 1817, favor celibacy although they do not enforce it. No marriage can take place without the consent of the trustees of the society; and they further discourage marriage by entering among the articles of their religion a declaration of their belief that celibacy is more in accordance with the divine will than marriage. The Amana community also, a German society in the United States, which dates its origin from early in the last century, discourages marriage among its members. No man is allowed to marry before he is twenty-four years of age. Mr. Nordhoff relates that the reason for this rule was explained to him by one of the elders of the Amana Society in these words: “They” (the young men) “have few cares in life, and would marry too early for their own good—food and lodging being secured them—if there were not a rule upon the subject.” The religious tone of the community is also set against marriage. Even the Perfectionists, whose extraordinary system of “complex marriage” has been already referred to, take many precautions against a superabundant population. The number of births is controlled by the heads of the society. Even when the number of births was increased it was stated that they were purposely kept within such limits that “judicious moral and spiritual care, with the advantage of a liberal education,” could be guaranteed to every child. The practical answer made by communists to the population question, even in so wealthy a country as America, in which unoccupied fertile land can be easily and cheaply obtained, is that a strict limitation of numbers is absolutely essential to their social and industrial well-being. As a matter of fact the population of nearly all the American communistic societies has not increased at all, but has greatly declined during the last fifty years. The number of Shakers, for instance, in 1823 was 3,800; their number in 1874 was 2,415. The Icarians, the only American community which makes marriage compulsory, have declined in twenty-five years from 1,500 to 65.

It would, however, be rash to conclude from these facts that the general adoption of communism would tend to strengthen the prudential checks on population. We have seen that modern communists, when freed from the trammels of actual experience of the daily working of the system they advocate, have vigorously denounced the theory and practice of Malthusianism. The American communities have declined in numbers partly in consequence of the adoption in two of them of celibacy as a religious principle. It is also impossible to avoid the conclusion that their numbers have fallen off partly in consequence of the unattractive conditions of communistic life. The young members of these societies not infrequently leave them when they arrive at manhood and womanhood. The routine and absence of spontaneity of a communistic life is a weight to young and active minds that is not counterbalanced by a security from want, or what has been called a bread-and-butter prosperity. The numbers of marriages and of births have been controlled in other of these societies in virtue of the absolute despotism which is vested in their chiefs; individual liberty is entirely suspended; the smallest minutiae of the daily life of their members is regulated from headquarters. A government which decides at what hour its subjects shall go to bed at night and rise in the morning; which describes the color, shape, and material of the dresses worn, the time of meals, the quality of the food consumed, the daily task apportioned to each member; which enforces a rule that each of its subjects shall leave every morning a notice stating at what exact spot he or she will be found during each hour of the day; a government which can do all these things will find no great difficulty in controlling the number of marriages and births. Mr. Nordhoff states that "the fundamental principle of communal life is the subordination of the individual's will to the general interest or the general will; practically this takes the place of unquestioning obedience by the members toward the elders or chiefs of their society." If, however, communism were adopted throughout a whole nation, the minute despotism which now distinguishes the government of existing communistic societies, and which furnishes them with an effectual control over the growth of population, would cease to be possible; or if, indeed, it should ever become possible, it would be through the careful suppression of individual liberty, and through the strenuous encouragement of everything which tended to destroy self-reliance on the part of the people and to build up the absolute power of the state. A people who purchased material prosperity at the price of their liberty would strike a bad bargain, especially when it is remembered that the limitation of the number of marriages and births which is enforced by the central authority in a communistic society can be effected by voluntary self-control in a society based on private property and competition. The difference, therefore, so far as the population question is concerned, between communism and private property is whether the necessary restraint upon the possible number of births shall proceed from the direct intervention of the state, or whether it shall proceed from the combined motives of self-interest, self-control, and parental obligation on the part of the people themselves. Even where the principles of communism are adopted in so very materially modified a form as they are in our poor-law system, legislative control over population has been enforced. The regulation which separates man and wife in the work-house is a practical recognition of the principle that, where the state guarantees a maintenance, it must, in self-protection, exercise control over the numbers of those dependent on it for support. Self-help brings with

it self-control; state-help makes state-control indispensable. In the present economic condition of society the solution of the population question is not to be found in placing in the hands of the state, as communism has done, absolute control over domestic life. The solution of the problem must be sought in education, in an improved standard of comfort, and a determination on the part of the people not to sink below it, and in a reform of the most communistic portion of our poor-law system,—the lavish distribution of outdoor relief.

COMO, a city of Italy, capital of the province of its own name, at the southwest corner of the Lake of Como, in a beautiful valley surrounded by richly-clad mountains. There are extensive factories in Como for the spinning and weaving of silk; it also manufactures woollens, cotton and soap; and there are iron-works in the immediate vicinity. To its position on the lake and its command of the Splügen and St. Gotthard lines of communication, it is indebted for a considerable trade by way of transit and distribution. About a mile to the south of the town is the tower of Baradello, famous as the place where the Torriani of Milan were confined in cages by the Visconti party, over whom they had previously tyrannized. The population of Como is 24,350.

COMO, LAKE OF, or, in Italian, *Lago di Como*, known to the Romans as *Lacus Larius*, is, from the beauty of its scenery and the mildness of its climate, one of the most celebrated of all the Italian lakes. It is situated in the province of Como, in that part of the country which belonged to the kingdom of Lombardy; and it occupies the bottom of a great valley, which, stretching south from the neighborhood of Chiavenna, at the foot of the Splügen, breaks up at Bellaggio into two branches which run, respectively, southeast and southwest. The lake is thus divided into three basins, of which the southwestern is known more particularly as the Lago di Como, and the southeastern as the Lago di Lecco.

COMONFORT, IGNACIO (1812-1863), a Mexican soldier and politician, who after occupying a variety of civil and military posts, was in December, 1855, made provisional president by Alvarez, and from December, 1857, was for a few weeks constitutional president. See MEXICO.

COMORES, or COMORO ISLANDS, a group in the Mozambique Channel, between Madagascar and Cape Delgado, on the east coast of Africa, discovered by Houtman in 1598, and consisting of the four main islands of Angaziya, Angazecha, or Great Comoro, Anzuan or Johanna, Mohilla, and Mayotta, and a considerable number of diminutive islets. 1. *Comoro*, the largest, has a length of about thirty-five miles, with a width of about twelve, and a population of 35,000. Near its southern extremity it rises into a fine dome-shaped mountain, which has a height of upwards of 8,500 feet, and is visible for more than 100 miles. Eruptions are recorded for the years 1830, 1855, and 1858; and traces of the last of these commotions are still very distinct. The island is politically divided into various petty principalities, and maintains its own petty feuds. The natives are tall of stature and well-formed, and appear to be mainly of Arabic descent, with a mixture of Malagasy blood. The chief towns are Maroni, Itzanda, and Mouchamouli. 2. *Johanna*, next in size, is under one sultan, who resides at the town of Johanna on the north side. The natives are hospitable to foreigners, and especially to Englishmen. 3. *Mayotta*, about twenty-one miles long by six or seven miles in breadth, is surrounded by an extensive and dangerous coral-reef. The island belongs to the French since 1843, and they have established a small military and naval colony on the contiguous islet of Zaudzi.

All the islands possess a very fertile soil; they produce cocoanuts, rice, maize, sweet-potatoes, yams, sugar, coffee, cotton, indigo, and various tropical fruits. A large number of cattle and sheep, the former similar to the small species at Aden, are reared by the natives; turtle is caught in abundance along the coasts, and forms an article of export, and the fauna is comparatively rich for the size of the area. Population of the group, 65,000.

COMPANY is one of the many words used to denote the association of individuals in the pursuit of some common purpose. Partnership, union, society, club, corporation, and company, all have this shade of meaning in common, although they differ from each other in many particulars. The suggested derivation of the word company (from *cum panis*) may be compared with the original meaning of *guild*. A guild was a feast, and the first associations named guilds, like the first associations named companies, had for their object the furtherance of a common entertainment. Corporation, unlike the other words of similar meaning, has in law a very definite signification. It applies only to an association which has been endowed with a fictitious personality, enabling it to sue and be sued, to acquire rights and incur obligations, without the individual members thereof being implicated. Company, on the other hand, may be used generally to describe almost any kind of association. In practice, however, it is confined to two classes of associations. The first are those joint-stock companies whose vast proportions and wide ramifications are among the most striking features of modern industrial life. The other are the livery or city companies, which still retain the name and the constitution, while they have long abandoned the objects of the guilds of the Middle Ages. See CORPORATIONS.

The objects of certain trading companies, as, for example, railways, involve an interference with the rights of private persons, which requires the direct authority of the Legislature. Such undertakings are therefore authorized by special Acts of Congress, which begin as private bills before one or other of the two Houses, and pass through both, and receive the assent of the President in the same manner as public bills (see BILL). The principles on which state interference with private rights is thus granted have so far been ascertained and fixed by the practice of many parliaments, that the procedure in private bills has tended to assimilate itself more and more to an ordinary litigation. The committees are tribunals acknowledging certain rules of policy, and hearing evidence from witnesses and arguments from professional advocates.

COMPARATIVE ANATOMY is the term employed to express that branch of anatomy in which the construction, form, and structure of two or more animals are compared with each other, so as to bring out their features of similarity or dissimilarity. It is sometimes used, in contrast with the term human anatomy to signify the anatomy of the lower animals, but this is an imperfect and inexact use of the term, as the anatomy of man may be made comparative when it is examined in comparison with that of animals.

COMPASS, THE MARINER'S, consists of three principal parts,—the card, the needle on its lower surface, and the case. The whole is enclosed in the compass-box, or binnacle. The term compass is said to have been applied to the instrument because the card involves or compasses the whole plane of the horizon, or because the needle indicates the whole circle of possible variations of direction. The surface of the card is divided by radiating lines into 32 parts, each containing $11^{\circ} 15'$; these constitute the 32 points or rhumbs; the half-points and quarters are subdivisions of the

same. The north pole is denoted on the card by a *fleur-de-lis*; and the line which joins the north and south poles passes through the axis of the needle. The points are named according to their proximity to the four cardinal points; for instance, the point mid-way between N. and N.E. is called north-northeast, being nearer north than east, and is marked N.N.E.; the point mid-way between N. and N.N.E. is termed north by east, and is marked N. by E. The circumference of the card is sometimes divided into 360° . The card is directed by the needle, which, with it, is pivoted on a vertical axis. With a little variation, the needle points nearly to the geographical north, and hence the mode of steering by the compass. Four or more parallel magnets, with like poles pointing in like directions, may be combined to form the needle; and by this arrangement the magnetic moment is increased for a given weight of steel. The needle is usually suspended on a central cap of ruby or agate, the point of suspension being of a similar hard material. On the inside of the compass-box is a vertical line known as lubber's point; and since this and the pivot of the card are in the same plane with the ship's keel, the point on the circumference of the card opposite to lubber's point shows the angle the ship's course makes with the magnetic meridian. The compass is kept horizontal by the use of a gimbal, or ring moving freely on an axis, within which it swings on an axis at right angles. In the azimuth compass the circumference of the card is divided into degrees and parts by a vernier, and is fitted up with sight-vanes to take amplitudes and azimuths, for the purpose of determining the variation of the compass by observation. The variation is applied to the magnetic course shown by the steering compass, and thus the true course with respect to the meridian becomes known.

The conditions that chiefly affect the use of the mariner's compass are those of the magnetic declination and deviation. The declination is the angle contained between the geographical or true and the magnetic meridian; or, as Barlowe defines it, the swerving of the pointing of the magnetical needle in the horizon from the meridian line there. The angle of declination varies according to locality, and must be ascertained at sea by means of the azimuth compass. The discovery of the variation of declination was made by Stephen Burrowes when voyaging between the north cape of Finmark and Vaigatch (Vaygates), and was afterward determined by Gillebrand, professor of geometry at Gresham College.

The earliest references to the use of the compass are to be found in Chinese history. The power of the loadstone to communicate polarity to iron is said to be for the first time explicitly mentioned in a Chinese dictionary, finished in 121 A.D., where the loadstone is defined as "a stone with which an attraction can be given to the needle." "The Chinese," Davis informs us, "once navigated as far as India, but their most distant voyages at present extend not further than Java and the Malay Islands to the south. The Chinese had soon occasion to perceive how much more essential the perfection of the compass was to the superior navigators of Europe than to themselves, as the commanders of the 'Lion' and 'Hindustan,' trusting to that instrument, stood out directly from the land into the sea." The number of points of the compass, according to the Chinese, is twenty-four, which are reckoned from the south pole; the form also of the instrument they employ is different from that familiar to Europeans. The needle is peculiarly poised, with its point of suspension a little below its center of gravity, and is exceedingly sensitive; it is seldom more than an inch in

length, and is less than a line in thickness. It appears thus sufficiently evident that the Chinese are not indebted to Western nations for their knowledge of the use of the compass. "It may be urged," writes Mr. T. S. Davies, "that the different manner of constructing the needle among the Chinese and European navigators shows the independence of the Chinese of us, as theirs is the *worse* method, and had they copied from us, they would have used the better one." On the other hand, it does not seem improbable that a knowledge of the mariner's compass was communicated by them directly or indirectly to the early Arabs, and through the latter was introduced into Europe. Sismondi has remarked (*Literature of Europe*, vol. i.) that it is peculiarly characteristic of all the pretended discoveries of the Middle Ages that when the historians mention them for the first time they treat them as things in general use. Gunpowder, the compass, the Arabic numerals, and paper are nowhere spoken of as discoveries, and yet they must have wrought a total change in war, in navigation, in science, and in education.

COMPASSES, instruments for transferring and marking off distances, or for drawing circles, ellipses, etc. The common compasses or dividers are simply two rods or "legs" joined together at one end by a pivot-joint, and pointed at the other; when used for drawing circles, the lower part of one of the legs is replaced by a pen or pencil.

COMPENSATION OF ERRORS, in Physics, a method of neutralizing errors which cannot be avoided, by introducing others into the experiment or observation, of an opposite nature, and equal in amount. The compensation pendulum illustrates the principle.

COMPETITION (Lat. a seeking together), "the act of endeavoring to gain what another endeavors to gain at the same time." Its most apt exemplification is a race, where all are going to the same point, and all strive to be first there, while, though only one can achieve this object, some others will have the satisfaction of being nearer to success than the competitors who are behind them. The most important practical use of the word competition is in the political economy of commerce, when it is the great motive power of production and enterprise. As an alternative to competition in modern times coöperation between producers and consumers has been introduced, and to a certain extent successfully. See CO-OPERATION.

COMPIEGNE, a town of France, at the head of an arrondissement, in the department of Oise, situated on the left bank of the Oise, which is there crossed by a handsome bridge of three arches, thirty-six miles east of Beauvais, on the railway between Paris and St. Quentin. It is famous as the occasional residence of the French kings from a very early period, and it possesses a considerable number of fine edifices. Population, 12,000.

COMPLEMENT is that which completes or makes up a given magnitude to some fixed magnitude. It is more commonly used in mathematics, to signify the arc or angle by which a given arc or angle falls short of a quadrant or right angle; thus, the complement of an arc of 60° is one of 30° ; and that of 30° is one of 60° . The arithmetical complement of a number is the number by which it falls short of the next higher number expressible by tens; thus, the arithmetical complement of 64 is $100 - 64 = 36$.

COMPLEMENT, in Music, the quantity required to be added to any interval to complete the octave; for example, a fourth is the complement of a fifth, a third is that of a sixth, etc.

COMPOSITÆ (called by Lindley *Asteraceæ*, and by some botanists *Synantheræ*), a natural order of exogenous plants, distinguished by compound flowers—

i.e., heads of flowers which are composed of a greater or smaller number of florets (generally of small size) congregated upon a common receptacle, and surrounded by bracts which form a leafy or scaly involucre, so as to resemble single flowers, which name they ordinarily receive. The order contains both herbaceous plants and shrubs; those which are natives of cold climates being herbaceous, and those found in warm regions shrubby, or even arborescent.

COMPOSITION, in Art, signifies such an arrangement of the separate objects represented as that they shall all manifestly tend to bring out the central thought or idea which animates the whole.

COMPOSTELLA, a city of Spain in the Galician province of Coruna, more frequently called Santiago, in honor of its patron saint, St. James, whose shrine was long one of the principal places of pilgrimage in Christendom. It gives its name to one of the four military orders of Spain which rank as follows:—Compostella, Calatrava, Alcantara, and Manresa. See SANTIAGO.

COMPOSTS are a kind of manure, consisting of mixtures of substances adapted to the fertilization of the soil, which being allowed to ferment, and undergo chemical changes for a considerable time in heaps, become more valuable than they were at first, or ever could have been if applied separately. Composts were formerly made of farm-yard manure, and earth or lime in addition. Roadscrapings, peat-moss, leaves, and clearings of ditches also formed materials for the purpose. By allowing these to lie in heaps, for six months, of from three to four feet in depth, food was prepared for plants.

COMPRESSED-AIR ENGINE. The air engine is used principally in connection with rock drills in mines and other underground work where the supply of oxygen is limited. It is not improbable that the electric motor will eventually supersede it. Although compressed air has been used for working small engines in confined situations, it is not at all likely that it will ever come into extensive use, owing to the great waste of power attending it. This waste arises from two causes—first, the friction due to forcing the compressed air along a great length of pipe, and secondly, the loss from the dissipation of the great heat which results from its compression. In boring the Mont Cenis and Hoosac tunnels compressed air was used to work the rock-drills.

COMPRESSIBLE BODIES. All bodies are compressible, but in different degrees. Many solids, especially those of a compact structure, have this property only in a slight degree. It was believed at one time that liquids were incompressible; more accurate experiments, however, have proved that this is not the case; water, for instance, subject to a pressure of 15,000 lbs. to the square inch, loses $\frac{1}{60}$ of its volume.

COMPTON, HENRY (1632–1713), bishop of London, was the youngest son of the earl of Northampton. After the restoration of Charles II. he became cornet in a regiment of horse, but he soon quitted the army for the church. He was made bishop of Oxford in 1674, and in the following year was translated to the see of London. He was also appointed a member of the Privy Council, and intrusted with the education of the two princesses—Mary and Anne. Compton showed a liberality most unusual at the time to Protestant dissenters, whom he wished to unite with the established church. On the accession of James II. he consequently lost his seat in the council and his deanery in the Chapel Royal; and for his firmness in refusing to suspend Dr. Sharpe, whose writings against popery had rendered him obnoxious to the king, he was himself suspended. At the Revolution, Compton embraced the cause of William and Mary; he performed the ceremony of their corona-

tion; his old position was restored to him; and among other appointments he was chosen as one of the commissioners for revising the liturgy. During the reign of Anne he remained a member of the Privy Council, and he was one of the commissioners appointed to arrange the terms of the union of England and Scotland; but, to his bitter disappointment, his claims to the primacy were twice passed over.

COMPURGATORS were twelve persons whom the law of our Saxon ancestors permitted the accused to call in proof of his innocence, and who joined their oaths to his. They were persons taken from the neighborhood, or otherwise known to the accused. It was rather in the character of jurymen than of witnesses that the compurgators acted, for what they swore to was not their knowledge, but their belief.

COMTE, AUGUSTE, the most eminent and important of that interesting group of thinkers whom the overthrow of old institutions in France turned toward social speculation.

Isidore-Auguste-Marie-Francois-Xavier Comte was born in January, 1798, at Montpellier, where his father was a receiver-general of taxes for the district. He was sent for his earliest instruction to the school of the town, and in 1814 was admitted to the Ecole Polytechnique. His youth was marked by a constant willingness to rebel against mere official authority; to genuine excellence, whether moral or intellectual, he was always ready to pay unbounded deference. That strenuous application which was one of his most remarkable gifts in manhood showed itself in his youth, and his application was backed or inspired by superior intelligence and aptness. After he had been two years at the Ecole Polytechnique he took a foremost part in a mutinous demonstration against one of the masters; the school was broken up, and Comte, like the other scholars, was sent home. To the great dissatisfaction of his parents, he resolved to return to Paris (1816), and to earn his living there by giving lessons in mathematics. Benjamin Franklin was the youth's idol at this moment. "I seek to imitate the modern Socrates," he wrote to a school friend, "not in talents, but in way of living. You know that at five and twenty he formed the design of becoming perfectly wise, and that he fulfilled his design. I have dared to undertake the same thing, though I am not yet twenty." Though Comte's character and aims were as far removed as possible from Franklin's type, neither Franklin nor any man that ever lived could surpass him in the heroic tenacity with which, in the face of a thousand obstacles, he pursued his own idea of a vocation.

Toward 1818 Comte became associated as a friend and disciple with a man who was destined to exercise a very decisive influence upon the turn of his speculation. Henry, count of Saint Simon, was second cousin of the famous duke of Saint Simon, the friend of the Regent, and author of the most important set of memoirs in a language that is so incomparably rich in memoirs. He was now nearly sixty, and if he had not gained a serious reputation, he had at least excited the curiosity and interest of his contemporaries by the social eccentricities of his life, by the multitude of his schemes and devices, and by the fantastic ingenuity of his political ideas.

The young Comte, now twenty, was enchanted by the philosophic veteran. In after years he so far forgot himself as to write of Saint Simon as a depraved quack, and to deplore his connection with him as purely mischievous. While the connection lasted he thought very differently. Saint Simon is described as the most estimable and loving of men, and the most delightful in his relations; he is the worthiest of philosophers. Even after the association had come to an end, and at

the very moment when Comte was congratulating himself on having thrown off the yoke, he honestly admits that Saint Simon's influence has been of powerful service in his philosophic education.

After six years the difference between the old and the young philosopher grew too marked for friendship. Comte began to fret under Saint Simon's pretensions to be his dictator. Saint Simon, on the other hand, perhaps began to feel uncomfortably conscious of the superiority of his disciple. The occasion of the breach between them (1824) was an attempt on Saint Simon's part to print a production of Comte's as if it were in some sort connected with Saint Simon's schemes of social reorganization. Comte was never a man to quarrel by halves, and not only was the breach not repaired, but long afterward Comte, as we have said, with painful ungraciousness took to calling the encourager of his youth by very hard names.

In 1825 Comte married. His marriage was one of those of which "magnanimity owes no account to prudence," and it did not turn out prosperously. His family were strongly Catholic and royalist, and they were outraged by his refusal to have the marriage performed other than civilly. They consented, however, to receive his wife, and the pair went on a visit to Montpellier. Madame Comte conceived a dislike to the circle she found there, and this was the too early beginning of disputes which lasted for the remainder of their union.

In the year of his marriage we find Comte writing to the most intimate of his correspondents: "I have nothing left but to concentrate my whole moral existence in my intellectual work, a precious but inadequate compensation; and so I must give up, if not the most dazzling, still the sweetest part of my happiness." We cannot help admiring the heroism which cherishes great ideas in the midst of petty miseries, and intrepidly throws all squalid interruptions into the background, which is their true place.

In 1826 Comte had a severe attack of cerebral derangement, brought on by intense and prolonged meditation, acting on a system that was already irritated by the chagrin of domestic failure. He did not recover his health for more than a year, and as soon as convalescence set in he was seized by so profound a melancholy at the disaster which had thus overtaken him, that he threw himself into the Seine. Fortunately he was rescued, and the shock did not stay his return to mental soundness.

In 1828 his studies were renewed, and in 1830 was published the first volume of the *Course of Positive Philosophy*. The sketch and ground plan of this great undertaking had appeared in 1826. The sixth and last volume was published in 1842. The twelve years covering the publication of the first of Comte's two elaborate works were years of indefatigable toil, and they were the only portion of his life in which he enjoyed a certain measure, and that in a very modest measure, of material prosperity. In 1833 he was appointed examiner of the boys, in the various provincial schools, who aspired to enter the Ecole Polytechnique at Paris. This and two other engagements as a teacher of mathematics secured him an income of some \$2,000 a year.

Meanwhile Comte did his official work conscientiously, sorely as he begrudged the time which it took from the execution of the great object of his thoughts. We cannot forbear to transcribe one delightful and touching trait in connection with this part of Comte's life. "I hardly know if even to you," he writes in the expansion of domestic confidence to his wife, "I dare disclose the sweet and softened feeling that comes over me when I find a young man whose examination is thoroughly satisfactory. Yes, though you may smile, the emotion would easily stir me to tears if I were not carefully on

my guard." Such sympathy with youthful hope, in union with the industry and intelligence, that are the only means of bringing the hope to fulfillment, shows that Comte's dry and austere manner veiled the fires of a generous social emotion. It was this which made the overworked student take upon himself the burden of delivering every year, from 1837 to 1848, a course of gratuitous lectures on astronomy for a popular audience. The social feeling that inspired this disinterested act showed itself in other ways. He suffered the penalty of imprisonment rather than serve in the national guard; his position was that though he would not take arms against the new monarchy of July, yet being a republican he would take no oath to defend it.

In 1842, as we have said, the last volume of the *Positive Philosophy* was given to the public. Instead of that contentment which we like to picture as the reward of twelve years of meritorious toil devoted to the erection of a high philosophic edifice, the author of this great contribution found himself in the midst of a very sea of small troubles. And they were troubles of that uncompensated kind that harass without elevating, and waste a man's spirit without softening or enlarging it. First, the jar of temperament between Comte and his wife had become so unbearable that they separated (1842). It is not expedient for strangers to attempt to allot blame in such cases, for it is impossible for strangers to know all the deciding circumstances. We need only say that in spite of one or two disadvantageous facts in her career which do not concern the public, Madame Comte seems to have uniformly comported herself toward her husband with an honorable solicitude for his well-being. Comte made her an annual allowance, and for some years after the separation they corresponded on friendly terms. Next in the list of the vexations that greeted Comte on emerging from the long tunnel of philosophizing, was a lawsuit with his publisher. The publisher had impertinently inserted in the sixth volume a protest against a certain foot-note, in which Comte had used some hard words about M. Arago. Comte threw himself into the suit with an energy worthy of Voltaire, and he won it. Third, and worst of all, he had prefixed a preface to the sixth volume, in which he deliberately went out of his way to rouse the active enmity of the very men on whom depended his annual re-election to the post of examiner for the Polytechnic School. The result of this perversity was that by-and-by he lost the appointment, and with it one-half of his very modest income.

From 1845 to 1848 Comte lived as best he could, as well as made his wife her allowance, on an income of \$1,000 a year. We need scarcely say that he was rigorously thrifty. His little account books of income and outlay, with every item entered down to a few hours before his death, are accurate and neat enough to have satisfied an ancient Roman householder. In 1848, through no fault of his own, his salary was reduced to \$400. M. Littré and others, with Comte's approval, published an appeal for subscriptions, and on the money thus contributed Comte subsisted for the remaining nine years of his life. By 1852 the subsidy produced as much as \$1,000 a year.

If you seek to place yourself in sympathy with Comte it is best to think of him only as the intellectual worker, pursuing in un comforted obscurity the laborious and absorbing task to which he had given up his whole life. His singularly conscientious fashion of elaborating his ideas made the mental strain more intense than even so exhausting a work as the abstract exposition of the principles of positive science need have been if he had followed a more self-indulgent plan. He did not write down a word until he had first composed the whole

matter in his mind. When he had thoroughly meditated every sentence, he sat down to write, and then, such was the grip of his memory, the exact order of his thoughts came back to him as if without an effort, and he wrote down precisely what he had intended to write, without the aid of a note or a memorandum, and without check or pause. For example, he began and completed in about six weeks a chapter in the *Positive Philosophy* (vol. v. ch. 55), which would fill forty of the large pages of this *Encyclopædia*. Even if his subject had been merely narrative or descriptive, this would be a very satisfactory piece of continuous production. When we reflect that the chapter in question is not narrative, but an abstract exposition of the guiding principles of the movements of several centuries, with many threads of complex thought running along side by side all through the speculation, then the circumstances under which it was reduced to literary form are really astonishing. It is hardly possible for a critic to share the admiration expressed by some of Comte's disciples for his style. We are not so unreasonable as to blame him for failing to make his pages picturesque or thrilling; we do not want sunsets and stars and roses and ecstasy; but there is a certain standard for the most serious and abstract subjects. When compared with such philosophic writing as Hume's, Diderot's, Berkeley's, then Comte's manner is heavy, labored, monotonous, without relief, and without light. There is now and then an energetic phrase, but as a whole the vocabulary is jejune; the sentences are overloaded; the pitch is flat. A scrupulous insistence on making his meaning clear led to an iteration of certain adjectives and adverbs, which at length deaden the effect beyond the endurance of all but the most resolute students. Only the profound and stimulating interest of much of the matter prevents one from thinking of Rivarol's ill-natured remark upon Condorcet, that he wrote with opium on a page of lead. The general effect is impressive, not by any virtues of style, for we do not discern one, but by reason of the magnitude and importance of the undertaking, and the visible conscientiousness and the grasp with which it is executed. It is by sheer strength of thought, by the vigorous perspicacity with which he strikes the lines of cleavage of his subject, that he makes his way into the mind of the reader; in the presence of gifts of this power we need not quarrel with an ungainly style.

Comte pursued one practice which ought to be mentioned in connection with his personal history, the practice of what he styled *hygiène cérébrale*. After he had acquired what he considered to be a sufficient stock of material, and this happened before he had completed the *Positive Philosophy*, he abstained deliberately and scrupulously from reading newspapers, reviews, scientific transactions, and everything else whatever, except two or three poets (notably Dante) and the *Imitatio Christi*. It is true that his friends kept him informed of what was going on in the scientific world. Still this partial divorce of himself from the record of the social and scientific activity of his time, though it may save a thinker from the deplorable evils of dispersion, moral and intellectual, accounts in no small measure for the exaggerated egotism, and the absence of all feeling for reality, which marked Comte's later days.

Comte lost no time, after the completion of his *Course of Positive Philosophy*, in proceeding with the *System of Positive Polity*, to which the earlier work was designed to be a foundation. The first volume was published in 1851, and the fourth and last in 1854. In 1848, when the political air was charged with stimulating elements, he founded the Positive Society, with the expectation that it might grow into a reunion as powerful over the new revolution as the Jacobin Club had been

in the revolution of 1789. The hope was not fulfilled, but a certain number of philosophical disciples gathered round Comte, and eventually formed themselves, under the guidance of the new ideas of the latter half of his life, into a kind of church. In the years 1849, 1850, and 1851, Comte gave three courses of lectures at the Palais Royal. They were gratuitous and popular, and in them he boldly advanced the whole of his doctrine, as well as the direct and immediate pretensions of himself and his system. The third course ended in the following uncompromising terms — "In the name of the Past and of the Future, the servants of Humanity — both its philosophical and its practical servants — come forward to claim as their due the general direction of this world. Their object is to constitute at length a real Providence in all departments, — moral, intellectual, and material. Consequently they exclude once for all from political supremacy all the different servants of God — Catholic, Protestant, or Deist — as being at once behindhand, and a cause of disturbance." A few weeks after this invitation, a very different person stepped forward to constitute himself a real Providence.

In 1852 Comte published the *Catechism of Positivism*. In the preface to it he took occasion to express his approval of Louis Napoleon's *coup d'état* of the second of December — "a fortunate crisis which has set aside the parliamentary system, and instituted a dictatorial republic." Whatever we may think of the political sagacity of such a judgment, it is due to Comte to say that he did not expect to see his dictatorial republic transformed into a dynastic empire, and, next, that he did not expect from the Man of December freedom of the press and of public meeting. His later hero was the Emperor Nicholas, "the only statesman in Christendom," — as unlucky a judgment as that which placed Dr. Francia in the Comtist Calendar.

In 1857 he was attacked by cancer, and died peaceably on the 5th of September of that year. The anniversary is always celebrated by ceremonial gatherings of his French and English followers, who then commemorate the name and the services of the founder of their religion. Comte was under sixty when he died. We cannot help reflecting that one of the worst of all the evils connected with the shortness of human life is the impatience which it breeds in some of the most ardent and enlightened minds to hurry on the execution of projects, for which neither the time nor the spirit of their author is fully ripe.

In proceeding to give an outline of Comte's system, we shall consider the *Positive Polity* as the more or less legitimate sequel of the *Positive Philosophy*. His letters when he was a young man of one-and-twenty, and before he had published a word, show how strongly present the social motive was in his mind, and of what little account he should hold his scientific works, if he did not perpetually think of their utility to the species. In 1822 he published a *Plan of the Scientific Works necessary to Reorganize Society*. In this opusculum he points out that modern society is passing through a great crisis, due to the conflict of two opposing movements, — the first, a disorganizing movement owing to the break-up of old institutions and beliefs; the second, a movement towards a definite social state, in which all means of human prosperity will receive their most complete development and most direct application. How is this crisis to be dealt with? What are the undertakings necessary in order to pass successfully through it toward an organic state? The answer to this is that there are two series of works. The first is theoretic or spiritual, aiming at the development of a new principle of co-ordinating social relations, and the formation of the system of general ideas which are destined to guide society. The second work

is practical or temporal; it settles the distribution of power, and the institutions that are most conformable to the spirit of the system which has previously been thought out in the course of the theoretic work. As the practical work depends on the conclusions of the theoretical, the latter must obviously come first in order of execution.

The *Positive Philosophy* opens with the statement of a certain law of which Comte was the discoverer, and which has always been treated both by disciples and dissidents as the key to his system. This is the Law of the Three States. It is as follows: Each of our leading conceptions, each branch of our knowledge, passes successively through three different phases; there are three different ways in which the human mind explains phenomena, each way following the other in order. These three stages are the Theological, the Metaphysical, and the Positive. Knowledge, or a branch of knowledge, is in the Theological state, when it supposes the phenomena under consideration to be due to immediate volition, either in the object or in some supernatural being. In the Metaphysical state, for volition is substituted abstract force residing in the object, yet existing independently of the object; the phenomena are viewed as if apart from the bodies manifesting them; and the properties of each substance have attributed to them an existence distinct from that substance. In the Positive state, inherent volition or external volition and inherent force or abstraction personified have both disappeared from men's minds, and the explanation of a phenomenon means a reference of it, by way of succession or resemblance, to some other phenomena, — means the establishment of a relation between the given fact and some more general fact. In the Theological and Metaphysical state men seek a cause or an essence; in the Positive they are content with a law. To borrow an illustration from an able English disciple of Comte: — "Take the phenomenon of the sleep produced by opium. The Arabs are content to attribute it to the 'will of God.' Molière's medical student accounts for it by a *soporific principle* contained in the opium. The modern physiologist knows that he cannot account for it at all. He can simply observe, analyze, and experiment upon the phenomena attending the action of the drug, and classify it with other agents analogous in character."

The first and greatest aim of the *Positive Philosophy* is to advance the study of society into the third of the three stages, — to remove social phenomena from the sphere of theological and metaphysical exceptions, and to introduce among them the same scientific observation of their laws which has given us physics, chemistry, physiology. Social physics will consist of the conditions and relations of the facts of society, and will have two departments, — one statistical, containing the laws of order; the other dynamical, containing the laws of progress. While men's minds were in the theological state, political events, for example, were explained by the will of the gods, and political authority based on divine right. In the metaphysical state of mind, then, to retain our instance, political authority was based on the sovereignty of the people, and social facts were explained by the figment of a falling away from a state of nature. When the positive method has been finally extended to society, as it has been to chemistry and physiology, these social facts will be resolved, as their ultimate analysis, into relations with one another, and instead of seeking causes in the old sense of the word, men will only examine the conditions of social existence. When that stage has been reached, not merely the greater part, but the whole, of our knowledge will be impressed with one character, the character, namely, of positivity or sci-

zificalness; and all our conceptions in every part of knowledge will be thoroughly homogeneous. The gains of such a change are enormous. The new philosophical unity will now in its turn regenerate all the elements that went to its own formation. The mind will pursue knowledge without the wasteful jar and friction of conflicting methods and mutually hostile conceptions; education will be regenerated; and society will reorganize itself on the only possible solid base—a homogeneous philosophy.

COMUS, (revel, or a company of revelers) was in the later mythology of the Greeks, the god of festive mirth. In classic mythology the personification does not exist; but Comus appears in the *Descriptions of Pictures*, of Philostratus, a writer of the third century A.D., as a winged youth, slumbering in a standing attitude, his legs crossed, his countenance flushed with wine, his head—which is sunk upon his breast—crowned with dewy flowers, his left hand feebly grasping a hunting spear, his right hand an inverted torch. Ben Jonson introduces Comus, in his masque entitled *Pleasure reconciled to Virtue* (1619), as the portly jovial patron of good cheer, “First father of sauce and diviser of jelly.” But Milton’s Comus is a creation of his own. His story is one—

“Which never yet was heard in tale or song
From old or modern bard, in hall or bower.”

Born from the loves of Bacchus and Circe, he is “much like his father, but his mother more”—a sorcerer, like her, who gives to travelers a magic draught that changes their human face into the “brutal form of some wild beast,” and, hiding from their own foul disfigurement, makes them forget all the pure ties of life, “to roll with pleasure in a sensual sty.”

CONCA, SEBASTIANO (1676–1764), a painter of the Florentine school, was born at Gaeta, and studied at Naples under Francesco Solimena. He died at Naples in 1764.

CONCAN, or KONCAN, a maritime tract of Western India, situated within the limits of the Presidency of Bombay, and extending from the Portuguese settlement of Goa on the south, to the territory of Damán on the north. The products of this country are the same as those of Malabar; the hemp raised is said to be of a stronger quality than that grown above the Gháts.

CONCAVE. A surface is said to be concave when lines drawn from point to point in it fall between the surface and the spectator; and convex when the surface comes between him and such lines.

CONCERT, a musical entertainment of concerted pieces, symphonies, etc., sometimes interspersed with songs, performed by an orchestra of many instruments of various kinds.

CONCERTINA, a musical instrument of modern invention, the sounds of which are produced by free vibrating springs of metal, as in the accordion. The scale of the concertina begins with the lowest note of the violin, G, and ascends chromatically three and a half octaves to C.

CONCLAVE. The word *cōnclavē* is used to signify any company of persons gathered together in consultation; its proper meaning is any such gathering of persons *locked up together* (from the preposition *cum*, and *clavis*, a key); and the technical meaning, which has superseded all other uses of the word, save where some other significance is specially indicated, is the meeting of the members of the Sacred College of Cardinals for the purpose of electing a Pope.

The Pope, who was simply the bishop of Rome, was originally chosen by the entire body of the people constituting the Church at Rome. Gradually, and by a

process of encroachment, the several steps of which are, as might be expected, very obscure, the right of nomination was confined to the clergy, the people still retaining a right of objection, exercised very much in the same manner as the forbidding banns of marriage is now exercised. The grasping tyranny of the clergy combined with the lawless turbulence of the laity, consisting no longer, as originally, of a select body of religious men, but of the entire population, to cause this participation of the laity also to fall into disuse. The next step was to allow the privilege of the vote only to the chief among the clergy—*cardinales*—the cardinal clergy, so called as the principal virtues were called cardinal virtues (see CARDINAL). During some centuries the emperor was understood to have a controlling voice in the election, in such sort that his approbation was necessary for the validity of it. But the practice varied much in this respect, according as the emperor was or was not strong, near at hand, or interested in the election. The history of this part of the subject is exceedingly obscure; but it is certain that at least one Pope provided that the consent of the emperor should be necessary for the election of his successor, and on the other hand that other elections were made about the same period without the emperor’s participation.

It was not till many years after the right of election had been abusively confined to the cardinals, that the practice of shutting up those dignitaries for the purpose of exercising that right was resorted to. And in the earliest instances the “conclave” seems to have been an involuntary imprisonment imposed on them *ab extra*. In 1216 the Perugians constrained the nineteen cardinals who elected Honorius III. to enter into conclave the day after the death of Innocent III., who died at Perugia, keeping them imprisoned till the election should be completed. Gregory IX. was similarly elected at Rome in 1227, the cardinals having been shut up against their will by the senators and people of Rome. In 1272 Gregory X. was elected at Viterbo by seventeen cardinals, who had not only been shut up against their will, but from over whose heads the roof of the building in which the conclave was held was removed by the citizens in order to hasten their deliberations.

This Gregory, in a council held at Lyons in 1274, promulgated a code of law for the conducting of the Papal election, comprised in fifteen rules. And these rules, though modified by subsequent pontiffs in some respects, and supplemented by a vast number of more minute regulations, remain to the present day the foundation and origin of all the law and practice of Papal elections. The text of this code is too lengthy to be given here. It may be read in the original Latin in the *Life of Gregory X.*, by Pagi, as in many other works, —*Notes to Platina* by Panvinius, &c.;—or in English, slightly abbreviated, in a volume on the Papal conclaves by T. A. Trollope (p. 64). The substance of some of the more important provisions may be given summarily, as follows: Cardinals to go into conclave on the tenth day after the Pope’s death, attended by one person only, unless in a case of evident need, when two may be admitted. Cardinals to live in conclave in common without separation between bed and bed by wall, curtain, or veil (modified by subsequent rules to the present practice of a wooden cell for each cardinal). No access to conclave to be permitted. An opening to be left for food to be passed in. No vote shall be given save in conclave. Cardinals who quit the conclave by reason of sickness cannot vote. Those who arrive after the closing of it may enter and vote. Cardinals who may have been censured or excommunicated cannot be excluded from conclave. An election can only be made by a two-thirds majority of those present.

Any man, lay or ecclesiastic, not a heretic and not canonically incapacitated, may be elected Pope. No entreaties or promises to be made by one cardinal to another with a view of influencing the vote. All bargains, agreements, undertakings, even though corroborated by an oath, having such an object to be of no validity; and "let him that breaks such be deemed worthy of praise rather than of the blame of perjury."

CONCORD, the capital of New Hampshire, is situated near the center of the State, on the Merrimac, 42 miles N.W. of Portsmouth and 75 miles N.N.W. of Boston by railroad. It is pleasantly laid out, for the most part on the west side of the river, and its principal streets are lined with trees. The State-house, which is a handsome edifice built of granite, occupies an open space ornamented with elms and maple trees. The town contains also a city hall and three public libraries; while in the neighborhood there is the State asylum for the insane, with a farm attached for the employment of the inmates. Concord is well supplied with water, and, having both railroad and canal communication, is advantageously situated for the development of its manufactures. These consist chiefly of carriages, dry goods, leather goods, and furniture. Granite of a superior quality is also quarried in the neighborhood; and a large trade is also carried on in dressed and undressed blocks. The site of the town was first occupied by settlers in 1725; it was known as Rumford until 1765, when it received its present name. It was incorporated as a city in 1853, and is now the seat of the courts formerly held in Portsmouth. Population in 1890, 17,400. Concord possesses two daily and three weekly newspapers, the Fowler public library and the library of the New Hampshire Historical Society. The city is lighted by gas and electricity, and is well paved and drained. There are three national and four savings banks. The valuation in 1889 was \$10,048,556; city tax, \$184,963; rate per \$100, \$1.25. The net debt in January, 1889, was \$474,446.

CONCORD, a town of the United States, in Middlesex county, Massachusetts, is twenty miles northwest of Boston by railroad. It is a quiet place of 2,400 inhabitants, containing a good public library. The interest attached to the town arises from the prominent part its citizens took in the early revolutionary war. It was here, on the 19th April, 1775, that the first blood was shed in the War of Independence (concurrent with the battle of Lexington), when an English detachment was driven from the town by Colonel Barrett at the head of some militia and "minutemen." A granite obelisk, 25 feet in height, was erected in 1835 on the spot where the first English soldiers fell.

CONCORDANCE, a verbal index, in which all the leading words used by an author are alphabetically arranged, with a reference to the place where each occurs.

CONCORDAT is an agreement between the Pope, as representing the Catholic Church, and a temporal sovereign, with reference to the rights of the church within the territory of the latter.

CONCORDIA, the goddess of concord, a Roman divinity, in whose honor several temples were erected at Rome. The most ancient of these was that built on the declivity of the Capitol by Camillus, 367 B.C.

CONCORDIA, a village of Italy in the province of Venice, thirty-five miles N.E. of the city of that name, and in the immediate neighborhood of the town of Portogruaro, of importance as preserving the name and marking the site of a famous Roman city of the later empire. Population (1889), 4,000.

CONCRETE, an artificial conglomerate or rubble

masonry, consisting of a mixture of coarse pieces of stone, gravel, shingle, broken brick, or crushed slag with sand and Portland or other cement. It is employed for laying the foundations of bridges and of buildings on soft or wet ground, as also in the construction of moles and break-waters, and of houses and churches; for the backing of wharves, of the abutments of arches, and of masonry generally where heavy walls are required; for the substance of fire-proof doors; for the making of sewer-pipes, and as a paving for streets and floors. It soon hardens after use, becoming a stony mass little permeated by moisture. In the shape of blocks, sometimes weighing very many tons, it has been found of great value for the formation of harbors and sea-walls in places to which stone could not have been transported.

CONCUBINAGE, the state of a man and woman cohabiting as married persons without the sanction of a legal marriage. In a scriptural sense, it denotes cohabiting lawfully with a wife of second rank, who enjoyed no other conjugal right but that of cohabitation, and whom the husband could repudiate and dismiss with a small present, (Gen. xxi.) In like manner he could, by means of presents, exclude his children by her from the heritage, (Gen. xxv.) To judge from the conjugal histories of Abraham and Jacob, the immediate cause of concubinage was the barrenness of the lawful wife, who in that case introduced her maid-servant to her husband, for the sake of having children. This resembles the singular practice authorized not only in Israel (Deut. xxv.), and anciently in Athens and Sparta, but by the laws of Menu, that a brother, or some other person, should be substituted when the married couple had been unable to produce offspring. In process of time, however, concubinage appears to have degenerated into a regular custom among the Jews; and the institutions of Moses were directed to prevent excess and abuse in that respect.

Concubinage is also used to signify a marriage with a woman of inferior condition, to whom the husband does not convey his rank. Such concubinage was beneath marriage both as to dignity and civil rights, yet concubine was a reputable title, and very different from that of "mistress" among us. The concubine also might be accused of adultery in the same manner as a wife. By French law the presence of a concubine in the house entitles the wife to a divorce. This kind of concubinage is still in use in some countries, particularly in Germany, under the title of *halbehe* (half-marriage), or left-hand marriage, in allusion to the manner of its being contracted, namely, by the man giving the woman his left hand instead of the right. This is a real marriage, though without the usual solemnity; and the parties are both bound to each other forever, though the female cannot bear the husband's name and title. Neither spouse has any right of succession to the other, but the children take a third of the father's estate, if he leaves no lawful children.

CONDAMINE, CHARLES MARIE DE LA. See LA CONDAMINE.

CONDÉ, a town of France, in the department of Nord, arrondissement of Valenciennes, is situated at the confluence of the Scheldt and the Haine, and at the terminus of the Mons canal, two miles from the Belgian frontier. Condé gives its name to a distinguished branch of the Bourbon family. Population, 5,000.

CONDÉ SUR NOIREAU, a town of France, in the department of Calvados, and arrondissement of Vire, is situated at the confluence of the Noireau and the Drouance, twenty-eight miles south of Caen.

CONDÉ, PRINCES OF. The title of prince of Condé

(assumed from the ancient town of Condé, noticed above) was borne by a branch of the House of Bourbon. The first who assumed it was the famous Huguenot leader, Louis de Bourbon, the fifth son of Charles de Bourbon, duke of Vendôme, (see next article.) His son, Henry, prince of Condé (1552-1588), also belonged to the Huguenot party. Fleeing to Germany, he raised a small army, with which in 1575 he joined Alençon. He became leader of the Huguenots, but after several years' fighting was taken prisoner of war. Not long after he died of poison, administered, according to the belief of his contemporaries, by his wife, Catherine de la Trémouille. This event, among others, awoke strong suspicions as to the legitimacy of his heir and namesake, Henry, prince of Condé, (1588-1646.) King Henry IV., however, did not take advantage of the scandal. In 1609 he caused the prince of Condé to marry Charlotte de Montmorency, whom shortly after Condé was obliged to save from the king's persistent gallantry by a hasty flight, first to Spain and then to Italy. On the death of Henry, Condé returned to France, and intrigued against the regent, Mary de Medici; but he was seized, and imprisoned for three years. There was at that time before the court a plea for his divorce from his wife, but she now devoted herself to enliven his captivity at the cost of her own liberty. During the rest of his life Condé was a faithful servant of the king. He strove to blot out the memory of the Huguenot connections of his house by affecting the greatest zeal against the Protestants. His old ambition changed into a desire for the safe aggrandizement of his family, which he magnificently achieved, and with that end he bowed before Richelieu, whose niece he forced his son to marry. His son Louis, the great Condé, is separately noticed below. The next in succession was Henry Jules, prince of Condé (1643-1709), the son of the great Condé and of Clémence de Maillé, niece of Richelieu. He fought with distinction under his father in Franche-Comté and the Low Countries; but he was heartless, avaricious, and undoubtedly insane. The end of his life was marked by singular hypochondriacal fancies. He believed at one time that he was dead, and refused to eat till some of his attendants dressed in sheets set him the example. His grandson, Louis Henry, duke of Bourbon (1692-1740), who did not assume the title of prince of Condé which belonged to him, was member of the council of regency which ruled during the minority of Louis XV., and first minister from the death of the duke of Orleans in 1723 to 1726, when he was superseded by Cardinal de Fleury. He greatly enriched his family and his mistress, De Prie, by taking every advantage of his position; but he made himself unpopular by the weight of taxes which he imposed. The son of the duke of Bourbon, Louis Joseph, prince of Condé (1736-1818), after receiving a good education, distinguished himself in the Seven Years' War, and most of all by his victory at Jöhanisberg. As governor of Burgundy he did much to improve the industries and means of communication of that province. At the Revolution he took up arms in behalf of the king, became commander of the "army of Condé," and fought in conjunction with the Austrians till the peace of Campo-Formio in 1797, being during the last year in the pay of England. He then served the emperor of Russia in Poland, and after that (1800) returned into the pay of England and fought in Bavaria. In 1800 Condé arrived in England, where he resided for several years. On the restoration of Louis XVIII. he returned to France. He died at Paris in 1818. He wrote *Essai sur la Vie du Grand Condé* (1798).

CONDÉ, LOUIS DE BOURBON, PRINCE OF (1530-

1569), fifth son of Charles de Bourbon, duke of Vendôme, younger brother of Anthony, king of Navarre, was the first of the famous House of Condé. Brave though deformed, gay but extremely poor for his rank, Condé was led by his ambition to a military career. He fought with distinction in Piedmont under Marshal de Brissac; in 1552 he forced his way with reinforcements into Metz, then besieged by Charles V.; he led several brilliant sorties from that town; and in 1554 he commanded the light cavalry on the Meuse against Charles. He then joined the Huguenots, and he was concerned in the conspiracy of Amboise, which aimed at forcing from the king by aid of arms the recognition of the Reformed religion. He was consequently condemned to death, and was only saved by the decease of Francis II. At the accession of the boy-king, Charles IX., the policy of the court was changed, and Condé received from Catherine de' Medici the government of Picardy. But the struggle between the Catholics and the Huguenots soon recommenced; in 1562, 200 of the latter were massacred at Vassy by Duke Francis of Guise. Upon this Condé retired from Paris, put himself at the head of 1,500 horsemen, and took possession of Orleans. Having raised troops in Germany, and entered into negotiations with Elizabeth of England, he marched on Paris, with 8,000 foot and 500 horse. A battle took place at Dreux, in which the leaders on both sides, Condé and Montmorency, were taken prisoners. Condé was liberated by the pacification of Amboise in the next year (1563). In 1567 the war broke out again. It was strongly suspected by the Huguenots that Catherine was meditating a great and final blow — the revocation of the Edict of Amboise, the perpetual imprisonment of Condé, and the death of Coligni; and their suspicions were confirmed by the levy of soldiers, including 6,000 Swiss, which she was engaged in making. Coligni determined to oppose her with a still bolder plan. The Huguenots were to rise *en masse*, crush the Swiss before they could join the main army, and take possession of the young king, his brothers, and Catherine herself. But both the Swiss and the royal family escaped safely to Paris. Paris was blockaded, and an indecisive battle fought at St. Denis. During the next year peace was again made, but soon after Catherine attempted to seize both Condé and Coligni. They fled to La Rochelle, and troops were collected. At the battle of Jarnac, with only 400 horsemen, and without having made himself sufficiently certain of the support of the infantry, Condé rashly charged the whole Catholic army. Worn out with fighting, he at last gave up his sword, and a Catholic officer named Montesquieu treacherously shot him through the head (15th December, 1569).

CONDÉ, LOUIS DE BOURBON, PRINCE OF (1621-1681), called during the lifetime of his father duc d'Enghien, but usually known as Condé the Great, was a distinguished French general, and one of the leaders of the Fronde. He was the son of Henry, prince of Condé, and Charlotte de Montmorency, and was born at Paris on the 7th September, 1621. As a boy, under the careful supervision of his father, he studied diligently, and displayed much talent at the Jesuits' College at Bourges; at seventeen he was sent to govern Burgundy; and while yet in his teens he had displayed his extraordinary courage in more than one campaign.

In 1643 Enghien was appointed to command against the Spaniards. He was opposed by experienced generals, De Mello and Fuentes, and the forces of the enemy were composed of veterans; on the other hand, the strength of the French army was placed at his command, and with him served Gassion and other skillful leaders who had fought under Gustavus Adolphus. At Rocroy a great battle took place. At first defeat threatened

the French, but, by the rapidity and boldness of his tactics, Enghien changed the event into a decided victory, and at the age of 22 made himself the most famous French general of his day. The achievement was well followed up, and, after several other successes, Thionville was forced to capitulate. Returning to Paris in triumph, Enghien gave himself up to pleasure, and in gallantry and intrigues strove to forget his enforced and hateful marriage. In 1644 he was sent into Germany to the assistance of Turenne, who was hard pressed by the able Comte de Mercy. At Fribourg for several days there was continuous fighting, which cost dear to both sides, but especially to the French, whose lives were ruthlessly squandered by their general. The result, however, was equal to a great French victory; for, alarmed at the stern discipline displayed by his army, the towns of the Rhine, including Mayence, opened their gates to the duke. The next winter Enghien spent, like every other winter during the war, amid the gayeties of Paris. The summer campaign of 1645 opened with the defeat of Turenne by Mercy, but there followed a series of brilliant victories won by Enghien, who fought in person with untiring energy and careless courage. In the battle of Nordlingen, in which Mercy was killed, his horse was twice shot under him, and he received several serious wounds. The capture of Philipsburg was the most important of his other achievements during this campaign. In 1646 the duke of Orleans took command, and Enghien volunteered to serve under him; but after the capture of Mardyke Orleans returned to Paris, leaving Enghien to take Dunkirk.

It was in this year that the old prince of Condé died. The enormous power that fell into the hands of his successor was naturally looked upon with serious alarm by the regent and her minister. Condé's birth and military renown placed him at the head of the French nobility; but, added to that, the family of which he was chief was both enormously rich and master of no small portion of France. Condé himself held Burgundy, Berry, and the marches of Lorraine, as well as other less important territory; his brother Conti held Champagne, his brother-in-law Longueville Normandy. When, therefore, he sought the office of admiral of France, the Government, determined to permit no increase of his already overgrown authority, refused on various pretexts to comply. But Mazarin did not dare to use it, as he had intended, as a dowry for his niece; and compensation was made to the prince by the gift of the post of captain-general, with power to appoint every officer in the army. Still dissatisfied, Condé now sought permission to raise an army at his own expense, and conquer Franche-Comté for himself. This could not be allowed; and Mazarin made an attempt, which for the moment proved successful, at once to find him employment and to tarnish his fame as a general. He was sent to lead the revolted Catalans. Supported in the meanest way, he was unable to achieve anything, and, being forced to raise the siege of Lerida, he returned home in bitter indignation. In 1648, however, he received the command in the important field in the Low Countries; and at Lens a battle took place, which, commencing with a panic in his own regiment, was retrieved by Condé's coolness and bravery, and ended in a victory that fully restored his prestige.

In September of the same year Condé was recalled to court, for the regent required his support. She was then engaged in a determined struggle against the Parliament of Paris, which, led by the noble Matthieu Molé, the Pym of France, was, like the contemporary Long Parliament in England, fighting for popular freedom, but hampered, unlike the Long Parliament, both

by its too tender reverence for the royal prerogative and by its alliance with De Retz and a section of the nobility, whose sole wish was to make of it a tool to gain the ends of their personal ambition. Influenced by the fact of his royal birth and by his arrogant scorn for the bourgeois, Condé lent himself to the court party. With his usual insolence he bullied and swore in the Parliament; and finally, after much hesitation, he consented to lead the army which was to reduce Paris.

On his side, insufficient as were his forces, the war was carried on with vigor. When an opportunity offered at Charenton, he struck terror into the Parisians by putting 3,000 of their picked forces to the sword. But such opportunities were seldom afforded him. The burgher soldiers had too tender a regard for their own safety to expose themselves outside the walls when his troops were in sight; their most warlike achievement was the sham-fight with the garrison of the Bastille, when both sides used blank cartridge, and the duchess de Longueville with her ladies, seated in the thickest of the fire, ate sweatmeats and smiled on their valor. The prince of Conti, who had been won over by De Retz to accept the office of commander-in-chief of the army of the Parliament, considered that he sufficiently fulfilled the duties of his exalted position by riding at the head of his troops through the streets of Paris, and regularly quitting them as they passed out of the gates. Enthusiasm was kept up by the duchess de Longueville's brilliant and crowded receptions. But at length their substantial losses, and a threatening of scarcity of food, made the citizens weary of the war. The Parliament became timid as it watched the events of the contemporary revolution in England. The regent and Mazarin were still more alarmed by the same terrible warning, as well as by their fears of a Spanish invasion and a declaration in favor of Paris from Turenne, who was advancing thither with his army. A conference was accordingly held at Ruel, and with great difficulty Mazarin and Molé brought about peace.

Once more the court met at Paris, again given up to selfish ambition, vanity and intrigues. Condé, most ambitious and vain of all, too vain to stoop even to civility, quickly earned for himself universal dislike. With no other apparent reason than an arbitrary whim, he forced the queen to reinstate as captain of the guard a certain conceited marquis named Jarsay, who had tormented her with his presumptuous love addresses. He prevented the marriage of one of Mazarin's nieces with the duke of Mercœur, refused to meet the cardinal in the council, and treated him with vulgar rudeness. The other nobles he offended by his airs of unapproachable superiority; he thwarted their attempts to attain the paltry ceremonial dignities—such as the high privilege of sitting at the royal receptions or assisting in the royal toilette—which were the dearest objects of their ambition; he kept them waiting hours in his antechamber, and yawned in their faces when they were admitted into his presence. With the Fronde he was tricked into an open quarrel. By the contrivance of Mazarin shots were fired into his empty carriage, and he was persuaded that they had been aimed at his life, and that De Retz and Beaufort, the noble patrons of the Fronde, were responsible for the deed. The prince at once accused them openly before the Parliament, nor would his pride allow him to own his mistake when the utter worthlessness of Mazarin's witnesses was conclusively proved. De Retz, an intriguer superior to Mazarin in boldness and scarcely inferior in duplicity, now secretly joined with the court. Yet, knowing as he did that he was surrounded by powerful enemies, Condé, secure in his own strength, ventured, by a fresh insult,

to goad the resentment of the regent into an uncontrollable desire for vengeance. The young duke of Richelieu was engaged, with the sanction of the queen and of his aunt and guardian, the duchess of Aiguillon, to the profligate Mlle. de Chevreuse, but was in love with a widow named Mme. de Pons. His alliance was of the highest value, for his uncle, the great minister, had left him several offices of importance, including the governorship of Havre de Grace. Wishing therefore to gain his friendship, Condé contrived his marriage with the lady he loved, and haughtily informed the queen that his presence rendered it valid without her consent. Urged by her own passionate indignation at the prince's defiance, and by the bitter complaints of the duchess of Aiguillon and Mlle. de Chevreuse, Anne no longer hesitated to resort to force.

Condé, Conti, and Longueville were accordingly arrested. But Bouillon and Turenne, who were also to be seized, made their escape; and Prince Marsillac (the Rochefoucauld of the *Maximes*), carried off his mistress, Condé's sister, the duchess of Longueville. By stratagem the young princess of Condé also obtained refuge in her husband's strong castle of Montrond. Vigorous attempts for the release of the princes began to be made. The women of the families were now its heroes. The dowager princess, though too miserly to part with her money to help her children, claimed from the Parliament the fulfillment of the reformed law of arrest, which forbade imprisonment without trial. The duchess of Longueville entered into negotiations with Spain. And the slighted young wife, with Lenet as adviser, having gathered an army around her, obtained entrance into Bordeaux and the support of the Parliament of that town. She alone, among the nobles who took part in the folly of the Fronde, gains our respect and sympathy. Faithful to a faithless husband, she came forth from the retirement to which he had condemned her, to fight for him with tact and bravery amid the rough bustle of war and politics, and to display an unselfishness and a sense of justice of which there is no other example among those who surrounded her, with their paltry aims and worthless lives. When the Parliament of Bordeaux patriotically refused to accept the assistance from Spain which the Frondeurs wished to force upon it, and the mob was stirred up by the duke of Bouillon to constrain it by violence, she risked her life to quiet the tumult.

The delivery of the princes was not, however, due to her efforts. Bordeaux was fortified, it is true, and resisted Mazarin for a time, but after the defeat of Turenne by Du Plessis at Rethel, peace was made on account of the vintage. The discomfiture of Mazarin was caused by the junction of the old Fronde (the party of the Parliament and of De Retz) and the new Fronde (the party of the Condés). An angry comparison, that had been drawn by the cardinal between the popular leaders and those who in England had two years before overthrown the monarchy and brought their king to the scaffold, was made by the skill of De Retz to arouse in the Parliament a characteristic storm of indignation, from which Mazarin was glad to escape by flight. The regent prepared to follow him; but her intention became known. The night air resounded with the peals of bells from Notre Dame and all the lesser churches of Paris. The refuse of the city, mingled with respectable burghers and haughty nobles, poured into the streets. The news that the king was about to be carried away was spread everywhere by the emissaries of the coadjutor. The court of the palace was soon filled by the motley crowd. They passed up the staircase, and into the very room where the child-king lay, with precocious cunning feigning to be asleep. At the unusual

sight, and abashed by the queen's cool derision, the mob reverentially withdrew. But Anne was forced to order the release of the princes from their prison at Havre; and Mazarin, humbling himself, rode down thither, and, falling at Condé's feet, piteously begged his protection and friendship.

The regent at once employed every means to draw Condé from his alliance with the Fronde. She made him offers which, from their very extravagance, might have aroused his suspicion—he and his family were to hold something like the half of the kingdom; and Condé relying on these faithless promises, carried out his part of the bargain by breaking with De Retz, the intended marriage of whose mistress, Mlle. de Chevreuse, with the duke of Conti he refused in haughty terms to permit. Meanwhile the queen had secretly gained over the coadjutor. A rumor reached Condé that he was to be assassinated or arrested; he fortified the Hôtel de Condé, and then retired from Paris, collected soldiers, and entered into negotiations with the archduke. He was consequently accused of high treason before the Parliament by order of the regent, and De Retz brought forward the charge. Condé appeared in person to meet it; and the building was filled with two bands of armed soldiers in the pay of the two parties. It seemed that the very Parliament House was to be the scene of civil war. The prince and the coadjutor spoke with vehemence and passion. Condé's hand was on the hilt of his sword, and his soldiers were only waiting for the signal to commence a deadly conflict, when a solemn appeal from President Molé calmed the frenzied assembly, and prevailed upon the rival nobles to dismiss their troops. Condé at once retired to his fortress at Montrond, where, after conference with his brother and sister, as well as Nemours and La Rochefoucauld, he resolved on renewing the civil war.

But his party was far from being as strong as it had been in the previous rising. Two causes alienated many of his most important allies: the rebellion was no longer against a regent, for the king had just attained his majority; and the rebel had sought and obtained aid from the foreign power of Spain. The Parliament of Paris declared him a traitor; Longueville, Orleans, Turenne, and Bouillon went over to the court. Even the faithful city of Bordeaux became estranged, for the duchess of Longueville encouraged the mob in acts of outrage. Mazarin now ventured to cross the frontier with an army. But at once the Parliament proscribed him; and the lieutenant-general, followed by Nemours and Beaufort, took up arms against the court. Mademoiselle forced her way through a hole in the walls of Orleans, with one or two of her ladies, and frightened the magistrates into espousing the revolt. But Beaufort and Nemours did not agree, and their army was in danger of being destroyed by Turenne. Condé came to its help, having in disguise crossed the enemy's country and passed close by the royal troops. The very next night Hocquincourt's camp was burnt, and Condé, hurrying to Paris, formed an alliance with Turenne, and sought to win over the Parliament. But Molé stripped off the veil of patriotism with which he sought to conceal his selfishness, and pointed out that he was allied with a foreign power, and that he was actually treating with the detested cardinal. The prince retaliated by stirring up the mob, and leaving the city to its savage caprice. At length he quitted Paris to save the rebel army which was hotly pressed by Turenne, and the magistrates persuaded the facile lieutenant-general to close the gates. At the gate St. Antoine, on the 2d July, 1652, Turenne and Condé met. Condé fought in person with marvelous energy; he seemed, said Turenne, to be twelve men at once; but, pressed by num-

bers as he was, it was apparent that he could hope for safety only by being admitted within the walls of Paris. Fortunately he had in the city as champion one of the most remarkable women of that strange time, Mademoiselle, the daughter of Gaston, duke of Orleans, and the author of *Mémoires*, who hoped to succeed his sickly wife, or, better still, by his means to obtain the hand of the young king. She frightened and persuaded the provost of the merchants and L'Hôpital, the governor of Paris, into opening the gates, and turned the cannon of Bastille on the army of Turenne. Keeping his ground so long as daylight lasted, at nightfall Condé entered the city. It was given up to pillage and murder. Fire was set to the building where the magistrates had met, and the magistrates themselves narrowly escaped with their lives. Famine began to be felt, and pestilence appeared. Deserted by crowds of his followers, bitterly disappointed, and worn out, as was whispered at the time, by his excesses, Condé was seized with fever. Mazarin, going into exile freed the court from the odium of his name; and the Fronde melted away.

On his recovery (October, 1652,) Condé fled from Paris and joined the Spanish army. The swift, bold tactics which had gained him glory were now impossible; he was constantly hampered by the ancient and ponderous methods of the Spaniards, by their inflexible etiquette, and their lordly laziness. He gained some successes, as the entry into Cambray, which was invested by Turenne, and the raising of the siege of Valenciennes; but fortune was, in general, on the side of France. At length, in 1659, after the disastrous battle of the Dunes, Spain, tired of the war, consented to the disadvantageous peace of the Pyrennes, and at the same time Condé obtained his pardon from Louis, who thought him less dangerous as a subject than as possessor of the independent sovereignty of Luxembourg, which had been offered him by Spain as a reward for his services.

Thenceforth he was excluded from court intrigues, and for several years he resided on his estate at Chantilly, where he gathered round him a brilliant company, which included many of the greatest men of genius that France has seen — Molière, Racine, Boileau, La Bruyère, La Fontaine, Nicole, Bourdaloue, and Bossuet. But the quarrel between Luvois, the minister of war, and Turenne again opened a field for his ambition. In 1668 he laid before the former a scheme for seizing Franche-Comté, the execution of which was intrusted to him, and successfully carried out. In the next year Condé was offered the crown of Poland, which, however, Louis would not allow him to accept. In 1672 he took part in the war with Holland, and forced the passage of the Rhine, at which engagement he was severely wounded in the wrist. In 1673 he met the Prince of Orange in the great but undecided battle of Seneffe. He served for the last time in 1675, as general of the army of the Rhine, which had been left without commander by the death of Turenne. After this campaign, prematurely worn out by the toils and excesses of his life, and tortured by the gout, he returned to Chantilly, where he spent the eleven years that remained to him in quiet retirement. In the end of his life he specially sought the companionship of Bourdaloue, Nicole, and Bossuet, declared himself a convert, and devoted himself to the ordinances of religion. He died on the 11th December, 1686, at the age of sixty-five. Bourdaloue attended him on his death-bed, and Bossuet pronounced a glowing funeral panegyric upon him.

CONDÉ, LOUIS HENRY JOSEPH (1756–1830), duke of Bourbon, and last prince of Condé, was the son of Louis Joseph, prince of Condé. Several of the earlier events of his life, especially his marriage with the

Princess Louise of Orleans, and the duel that the prince of Artois provoked by raising the veil of the princess at a masked ball, caused much scandal. At the Revolution he fought with the army of the émigrés in Liège. Between the return of Napoleon at Elba and the battle of Waterloo, he headed with no success a royalist rising in La Vendée. In 1829 he appointed the Duc d'Aumale his heir; and exactly a year after he was found strangled with a handkerchief round his neck. A famous trial was the consequence, in which no verdict was given.

CONDE, JOSÉ ANTONIO (1765–1820), a distinguished Spanish Orientalist, was born at Paraleja, in the province of Cuenca, and was educated at the university of Alcalá. Intended by his father for the law, he found means to learn not only Greek, but even Hebrew and Arabic. A subordinate post in the royal library enabled him at an early age to abandon his legal studies, and to devote himself entirely to literature; and in 1796 he published a volume of paraphrases from the Greek idyllists. This was followed, in 1799, by an edition of the Arabic text of Edrisi's *Description of Spain*, accompanied with notes and a translation. Though by no means free from inaccuracies, this publication greatly advanced the editor's reputation. He was made a member of several learned societies, and was one of the commission of three appointed to continue the bibliographical labors of Sanchez; and he received royal aid in the studies requisite for the composition of his next work, the famous *History of Moorish Rule in Spain*. On Napoleon's appearance in Madrid (1808), Conde identified himself with the party of France. Joseph Bonaparte made him librarian in chief at the royal library; and he had to leave his native land with the retreating invaders. After a residence of some years in Paris, spent in arranging materials for his history, Conde was at last permitted to return to Spain in 1818 or 1819. His countrymen, however, would not forgive him for his apostasy; he sank into poverty, and died soon after his return.

CONDER, JOSIAH, an English littérateur, was born in Falcon Street, Aldersgate, London, on 17th September, 1789, and belonged to an old nonconformist family, proud of its hereditary piety and nonconformity. His whole literary activity was influenced by his religious convictions, and it was not only as editor of the *Eclectic* that he endeavored to "reconcile those long divorced parties—religion and literature." His most popular work was his *Modern Traveler*, a series of thirty volumes descriptive of the various countries of the globe; but he will probably be longest remembered as the author of a few hymns not unworthy to rank with the best examples of nonconformist psalmody. He died on December 27, 1855. His life has been written by his son, Eustace R. Conder.

CONDILLAC, ÉTIENNE BONNOT DE (1715–1780), Abbé de Mureaux, a distinguished writer in logic, psychology, and economic science, was born at Grenoble. Very little is known about the particulars of his life. He was the younger brother of the Abbé de Mably, and associated in his youth with Rousseau, Diderot, Duclos, and other philosophers, but afterwards allowed the intimacy to die out. He was of a serious and dignified character, and devoted himself to a life of laborious study. Like Comte and Mill, he acknowledges himself to have been largely indebted to a lady for his philosophical inspiration. While still young he was appointed preceptor to the duke of Parma, grandson of Louis XV., for whose instruction a large number of his works were composed. He was chosen by the French Academy of Sciences to succeed the Abbé d'Olivet in 1768, but after delivering a discourse on that occasion he never again

appeared at the meetings. He lived in retirement on his estate of Flux, near Beaugency, till his death on 3d August, 1780.

CONDOM, a town of France, at the head of an arrondissement, in the department of Gers, twenty-six miles from Auch, on the Bayse, a tributary of the Garonne, there crossed by two stone bridges. The church of St. Peter, formerly a cathedral, is included among the historic monuments of France, and deserves notice for the height of its vaulted roof. Population in 1889, 5,205.

CONDOR, (*Sarcorhamphus gryphus*), a New World vulture, and the largest of existing birds, although by no means attaining the dimensions attributed to it by early writers. It usually measures about four feet from the point of the beak to the extremity of the tail, and nine feet between the tips of its wings, while it is probable that the expanse of wing never exceeds twelve feet. The head and neck are destitute of feathers, and the former, which is much flattened above, is in the male crowned with a caruncle, or comb, while the skin of the latter in the same sex, lies in folds, forming a wattle, dilatable at pleasure. The adult plumage is of a uniform black, with the exception of a frill of white feathers nearly surrounding the base of the neck, and certain wing feathers which, especially in the male, have large patches of white. The middle toe is greatly elongated, and the third but slightly developed, while the talons of all the toes are comparatively straight and blunt, and are thus of little use as organs of prehension. The female, contrary to the usual rule among birds of prey, is smaller than the male.

The condor is a native of South America, where it is confined to the region of the Andes, from the Straits of Magellan to 4° north latitude,—the largest condors, it is said, being found about the volcano of Coquimba, situated on the equator. It is often seen on the shores of the Pacific, especially during the rainy season, but its favorite haunts for roosting and breeding are at elevations of 10,000 to 16,000 feet. There, during the months of February and March, on inaccessible ledges of rock, it deposits two white eggs, from three to four inches in length, its nest consisting merely of a few sticks placed around the eggs. They sleep during the greater part of the day, searching for food in the clearer light of morning and evening. They are remarkably heavy sleepers, and are readily captured by the inhabitants ascending the trees on which they roost, and noosing them before they awaken. Great numbers of condors are thus taken alive, and these, in certain districts, are employed in a variety of bull-fighting. They are exceedingly tenacious of life, and can exist, it is said, without food for over forty days. Although the favorite haunts of the condor are at the level of perpetual snow, yet it rises to a much greater height, Humboldt having observed it flying over Chimborazo at a height of over 23,000 feet. "No other living creature," says a recent traveler in the Andes, "can remove at pleasure so great a distance from the earth, and it seems to fly and respire as easily under the low barometric pressure of thirteen inches as at the seashore. It can dart in an instant from the dome of Chimborazo to the sultry coast of the Pacific." In walking it trails its wings on the ground, and has an exceedingly awkward gait, but on wing the movements of the condor, as it wheels in majestic circles, are remarkably graceful. The birds flap their wings on rising from the ground, but after attaining a moderate elevation they seem to sail on the air, Darwin having watched them for half an hour without once observing a flap of their wings. There is a brown condor, "condor pardo," which naturalists have generally regarded as the young

of the "condor negro." Recent investigations have, however, proved it to be a distinct species.

CONDORCET, MARIE JEAN ANTOINE NICOLAS CARITAT, MARQUIS DE, was born at Ribemont, in Picardy, on the 17th of September, 1743. He descended from an ancient family who took their title from the castle of Condorcet, near Nion, in Dauphiny. He was educated at the Jesuit College in Rheims and at the College of Navarre in Paris, and early displayed the most varied mental activity. His first public distinctions were gained in the department of mathematics. At the age of sixteen, his performances in analysis elicited high commendations from D'Alembert and Clairaut, and at the age of twenty-two, he composed a treatise on the integral calculus which obtained warm and general approbation from the most competent judges. With his many-sided intellect and richly-endowed emotional nature, however, it was impossible for him to be a mere specialist, and least of all to be a mere mathematician. Philosophy and literature attracted him no less than geometry or the calculus, and social action, work for the public weal, was dearer to him than any form of intellectual exercise. In the year 1769, he was received as a member of the Academy of Sciences. His contributions to its memoirs are numerous, and many of them are on the most abstruse and difficult mathematical problems. Being of a very genial, susceptible, and enthusiastic disposition, he was the friend of almost all the distinguished men of his time, and a zealous propagator of the religious and political views then current among the literati of France. D'Alembert, Turgot, and Voltaire, for whom he had great affection and veneration, and by whom he was highly respected and esteemed, contributed largely to the formation of his opinions. His *Lettre d'un laboureur de Picardie à M. Necker* was written under the inspiration of Turgot, in defense of free internal trade in corn. His *Lettre d'un théologien, &c.*, was attributed to Voltaire, being impregnated throughout with the Voltairian anti-religious spirit. He was induced by D'Alembert to take an active part in the preparation of the *Encyclopédie*. His *Éloges des Académiciens de l'Académie Royale des Sciences morts depuis 1666 jusqu'en 1699* (1773) gained him the merited reputation of being an eloquent and graceful writer. He was elected to the perpetual secretaryship of the Academy of Sciences in 1777, and was received into the French Academy in 1782. Three years afterward he published a work on the application of the mathematical theory of probabilities to judicial decisions. This work is admitted to have demonstrated that the calculus had a wider range than had previously been suspected, and to have permanently secured for its author a distinguished place in the history of the doctrine of probability. A second edition of it, greatly enlarged and completely recast and revised, appeared in 1804, ten years after his death, under the title of *Éléments du calcul des probabilités et son application aux jeux de hazard, à la loterie, et aux jugements des hommes, &c.* He married, in 1786, a sister of Marshal Grouchy and of Madame Cabanis. His wife, said to have been one of the most beautiful women of her time, is known in literature by her excellent translation of Adam Smith's *Theory of Moral Sentiments*. In 1786 Condorcet published his *Vie de Turgot*, and in 1787 his *Vie de Voltaire*. Both works were widely and eagerly read, and are, perhaps, from a merely literary point of view, the best of Condorcet's writing.

The political tempest which had been long gathering over France, now began to break and to carry everything before it. Condorcet was, of course, at once hurried along by it into the midst of the conflicts and confusion of the Revolution. He greeted with enthusiasm the

advent of democracy, and labored hard to secure and hasten its triumph. He was indefatigable in writing pamphlets, suggesting reforms, and planning constitutions. The first political functions which he exercised were those of a member of the municipality of Paris. He was next chosen by the Parisians to represent them in the Legislative Assembly, and then appointed by that body one of its secretaries. In this capacity he drew up most of its addresses, but seldom ascended the tribune, his pen being a more effective weapon than his tongue. He was the chief author of the address to the European powers when they threatened France with war. He devised likewise a bold and comprehensive scheme for the organization of public instruction, and not only brought it before the Assembly, but published an exposition of it in five elaborate memoirs. In the Convention he sat for the department of the Aisne. At the trial of Louis XVI. he voted the king guilty of conspiring against liberty, and worthy of any punishment short of death, but recommended an appeal to the people. He took an active part in the framing of a constitution, which was laid before the Convention in February, 1793, with an elaborate prefatory dissertation of Condorcet's composition, but another was introduced, adopted, and decreed. Condorcet's severe criticism of this latter document, his denunciation of the arrest of the Girondists, and his opposition to the violent conduct of the Mountain, led to his being accused of conspiring against the Republic. He was condemned and declared an outlaw. Friends sought for him an asylum in the house of a Madame Vernet. Without even requesting to know his name, this truly heroic woman, as soon as she was assured that he was an honest and virtuous man, said, "Let him come, and lose not a moment, for while we talk he may be seized." When the execution of the Girondists showed him that his presence exposed his protectress to a terrible danger, he resolved to seek a refuge elsewhere. "I am outlawed," he said, "and if I am discovered you will meet the same sad end as myself. I must not stay." Madame Vernet's reply deserves to be immortal, and should be given in her own words: "La Convention, Monsieur, a le droit de mettre hors la loi: elle n'a pas le pouvoir de mettre hors de l'humanité; vous resterez." From that time she had his movements strictly watched lest he should attempt to quit her house. It was partly to turn his mind from the idea of attempting this, by occupying it otherwise, that his wife and some of his friends, with the coöperation of Madame Vernet, prevailed on him to engage in the composition of the work by which he is best known—the *Esquisse d'un tableau historique des progrès de l'esprit humain*. Certain circumstances having led him to believe that the house of Madame Vernet, 21 Rue Servandoni, was suspected and watched by his enemies, he, by a fatally successful artifice, baffled the vigilance of his generous friend and escaped. Disappointed in finding even a night's shelter at the chateau of one whom he had befriended, he had to hide for three days and nights in the thickets and stone-quarries of Clamart. On the evening of the 7th April, 1794,—not as Carlyle says, on a "bleared May morning,"—with garments torn, with wounded leg, with famished looks, he entered a tavern in the village named, and called for an omelette. "How many eggs in your omelette?" "A dozen." "What is your trade?" "A carpenter." "Carpenters have not hands like these, and do not ask for a dozen eggs in an omelette." When his papers were demanded he had none to show; when his person was searched a Horace was found on him. The villagers seized him, bound him, hauled him forthwith on bleeding feet towards Bourg-la-Reine; he fainted by

the way, was set on a horse offered in pity by a passing peasant, and, at the journey's end, was cast into the cold damp prison-cell. When the jailers looked in on the morning his body lay dead on the floor. Whether he had died from suffering and exhaustion, from apoplexy, or from poison, is an undetermined question.

Condorcet held many opinions which comparatively few will be found ready to indorse, but he was undoubtedly a most sincere, generous, and noble-minded man. He was eager in the pursuit of truth, ardent in his love of human good, and ever ready to undertake labor or encounter danger on behalf of the philanthropic plans which his fertile mind contrived and his benevolent heart inspired. He lived at a time when calumny was rife, and various slanders were circulated regarding him, but fortunately the slightest examination proves them to have been inexcusable fabrications. That while openly opposing royalty he was secretly soliciting the office of tutor to the Dauphin; that he was accessory to the murder of the Duc de la Rochefoucauld; or that he sanctioned the burning of the literary treasures of the learned congregations, are stories which can be distinctly shown to be utterly untrue.

Condorcet's philosophical fame is chiefly associated with the work which he wrote when lying concealed from the emissaries of Robespierre in the house of Madame Vernet. With the vision of the guillotine before him, with confusion and violence around him, he comforted himself by trying to demonstrate that the evils of life had arisen from a conspiracy of priests and rulers against their fellows, and from the bad laws and institutions which they had succeeded in creating, but that the human race would finally conquer its enemies and completely free itself of its evils. His fundamental idea is that of a human perfectibility which has manifested itself in continuous progress in the past, and must lead to indefinite progress in the future.

CONDOTTIERI. The condottieri (Italian, *condottiere*, captain, from *condotta*, conduct, *condurre*, to lead; Latin, *conducere*,) were leaders of military companies, often numerous enough to constitute a large army, which they used to hire out to carry on the wars of the Italian states. The condottieri played a very important part in Italian history during the fourteenth and fifteenth centuries, especially from the middle of the fourteenth to the middle of the fifteenth. The explanation of their origin is to be sought in the special circumstances of Italy toward the close of the Middle Ages. The republics and lordships into which the country was divided were incessantly engaged in war, while the arts of peace and luxury were cultivated to such a degree that the military spirit of the people had greatly declined in comparison with the rest of Europe. In many cities, such as Milan, tyrants had begun to supersede the old republican governments, and they found it much safer to engage a mercenary army to fight their battles than to arm their own subjects. Soldiers of foreign armies, which then as afterwards not seldom overran the Italian soil, did not always return, but often stayed with their feudal leaders, and lived at free quarters. Montreal d'Albarno, a gentleman of the Province, was the first to give a definite form to these lawless bands. A severe discipline, and an elaborate organization were introduced within the company itself, while in their relations to the people the most barbaric license was permitted. Montreal himself was put to death at Rome by Cola di Rienza, and Count Lando succeeded to the command. The Grand Company, as it was called, soon numbered about 7,000 cavalry and 1,500 select infantry, and was for some years the terror of Italy. They seem to have been Germans chiefly. On the conclusion (1360) of the peace of Bretigny between England and

France, Sir John Hawkwood, an able general, led an army of English mercenaries, called the White Company, into Italy, which, in the service of Pisa, and afterward of Florence, took a prominent part in the confused interminable wars of the next thirty years. Toward the end of the century the Italians began to organize armies of the same description, the first of importance being the company of St. George, originated by Alberigo, count of Barbiano. The defeat of the German emperor, Rupert, by the great condottiere, Jacopo del Verme, due to the superior equipment and organization of the Italian army, taught the northern barbarians to respect the skill of the south. Shortly after, the organization of these mercenary armies was carried to the highest perfection by Sforza Attendolo, condottiere in the service of Naples, who had been a peasant of the Romagna, and by his rival Braccio di Montone in the service of Florence. The army and the renown of Sforza were inherited by his son Francesco Sforza, who married a natural daughter of one of the Visconti of Milan, conducted the wars of that city against Venice, and eventually became duke of Milan (1450), which his family continued to rule for some generations. Less fortunate was another great condottiere, Carmagnola, who first served one of the Visconti, and then conducted the wars of Venice against his former masters, but at last awoke the suspicion of the Venetian oligarchy, and was put to death before the palace of St. Mark (1432). Toward the end of the fifteenth century, when the large cities had gradually swallowed up the small states, and Italy itself was drawn into the general current of European politics, and became the battlefield of powerful armies,—French, Spanish, and German,—the condottieri disappeared.

CONDUCTORS and NON-CONDUCTORS OF ELECTRICITY. If a rod of metal be made to touch the prime conductor of an electrical machine immediately after the plate has ceased to rotate, every trace of electricity immediately disappears. But if the rod were of shellac, little or no diminution would be perceptible in the electrical excitement of the conductor. The metal in this case leads away the electricity into the body of the experimenter, and thence into the ground, where it is lost, and it receives in consequence the name of conductor. The shellac, for the opposite reason, is called a non-conductor. Different substances are found to possess the power of conducting electricity in very different degrees. The following series classifies the more common substances according to their conducting powers, beginning with the best and ending with the worst conductors. Conductors—The metals, graphite, sea-water, spring-water, rain-water. Semi-conductors—Alcohol and ether, dry wood, marble, paper, straw, ice at 32° F. Non-conductors—Dry metallic oxides, fatty oils, ice at 13° F., phosphorus, lime, chalk, caoutchouc, camphor, porcelain, leather, dry paper, feathers, hair, wool, silk, gems, glass, agate, wax, sulphur, resin, amber, shellac. See **ELECTRICITY**.

CONE. There are various kinds of cones, but the term is usually applied only to those having circular bases. The most common kind of circular cone is the right cone, which may be conceived as being generated by the resolution of a right-angled triangle round one of its legs. The line from the apex of a cone to the center of the base is called the axis, and, in the right cone, it is perpendicular to the base. In the oblique cone, the axis is inclined to the plane of the base at an angle other than a right angle. A truncated cone is the lower part of a cone cut by a plane parallel to the base. Four curves, called the conic sections, may be formed by cutting the right cone in different direction.

CONECTÉ, THOMAS, a French Carmelite monk and

preacher, was born at Rennes. He traveled through Flanders and Picardy, denouncing the vices of the clergy and the extravagant dress of the women, especially their lofty head-dresses, or *hennins*. He ventured to teach that he who is the true servant of God need fear no Papal curse, that the Roman hierarchy is corrupt, and that marriage is permissible to the clergy, of whom only some have the gift of continence. He was listened to by immense congregations; but at length he was seized by order of the Pope, condemned, and burned for heresy (1434).

CONEGLIANO, a town of Italy, in the province of Treviso, on the River Mutege, with a station on the railway from Venice to Trieste, about thirty-six miles north of the former city. Population about 6,000.

CONFARREATIO, a ceremony observed among the ancient Romans at the nuptials of those persons more particularly whose children were destined to be vestal virgins or *flamines diales*.

CONFECTIONERY, a term of rather vague application, but which may be held to embrace all preparations which have sugar for their basis or principal ingredient. In this way it may be said to include the preservation of fruits by means of sugar, the manufacture of jams and jellies, the art of preparing fruit-syrups and pastes, ices, and sweetened beverages, in addition to the various manufactures in which sugar is the more prominent and principle ingredient.

CONFEDERATE STATES. The "Confederate States of America," although a misnomer, is the title popularly given to the quasi-political organization which, from early in 1861 until April, 1865, maintained an armed rebellion against the United States. In 1861 several of the United States armed against the general government, maintained armies in the field and privateers on the sea, obtained partial recognition from certain European governments; and the armed bodies thus set in motion were, at great cost of blood and treasure, finally subdued, peace and order restored, and the recognized machinery of government again set in motion. Of the military features which distinguished this interregnum, the reader will find details under the headings of the various battles. In this place we design to speak only of the manner in which the rebellious movement was inaugurated, and of the semblance of government maintained. When in November, 1860, Mr. Lincoln was elected President, the legislature of South Carolina, in session to choose presidential electors, called a State convention. On December 20, 1860, that body unanimously adopted an ordinance repealing the ratification by South Carolina of the Constitution of 1788, and in its own words "dissolving the union between the State of South Carolina and other States under the name of the United States of America." Similar ordinances were passed by State conventions in Mississippi, January 9, 1861; Florida, January 10; Alabama, January 11; Georgia, January 19; Louisiana, January 25; and Texas, February 1. These ordinances of secession were not submitted to the people for ratification, except in the case of Texas. Seven States having thus irregularly constituted themselves separate commonwealths, each elected delegates to a congress which began its sessions at Montgomery, Ala., February 4. A provisional constitution, being that of the United States with some notable changes, was adopted, but was succeeded by a permanent one on March 11. This constitution asserted the sovereignty and independence of each State, prohibited protection, recognized slavery, provided for a President and Vice-President, with a term of six years, and in most other details closely followed the lines of the United States Constitution of 1789. Meantime, the delegates from six States (those from Texas not being

present) had elected Jefferson Davis, of Mississippi, President, and Alexander H. Stephens, of Georgia, Vice-President, of what was termed the Confederate States. Acts of rebellion occurred in most States south of Mason and Dixon's line; forts, arsenals, navy-yards and custom-houses were seized by mobs or by the newly-constituted authority, and Federal soldiers were captured and sent north. When on March 4, 1861, Abraham Lincoln was inaugurated, the sole semblance of Federal authority in the seceding States was to be found at Fort Pickens, Fla., and Fort Sumter, S. C. On April 12-14, the Carolinian troops fired on Sumter, thus beginning the war. Next day President Lincoln, by proclamation, announced the existence of an armed rebellion, and called for 75,000 volunteers to suppress it. A convention in Virginia passed an ordinance of secession April 17; Arkansas did the same May 6; North Carolina, May 21; Missouri, Kentucky, Maryland and Delaware did not secede either by action of conventions or by popular vote, but in the first two some sections went with the South and a border war began. Forty counties in the west part of Virginia repudiated the ordinance of secession, held a convention at Wheeling June 11, and proclaimed themselves a new State, which was admitted to the Union, under the name of West Virginia, June 19, 1863. The war, which began which began with the firing on Sumter, in April, 1861, practically ending at Appomattox Court House, Va., four years later, cost hundreds of thousands of lives and thousands of millions of treasure. As to the political, financial and diplomatic history of the Confederacy, it was characterized by failure on all hands. The first election of President and Congressmen under the new constitution was held November 6, 1861. Davis and Stephens were chosen to the respective offices then held by them for a term intended to run to February, 1868. The provisional congress gave way to a permanent congress, in which thirteen States were represented. Stephens presided over the Senate, which numbered twenty-six members, and Thomas S. Bocock, of Virginia, was speaker of the House, which had 106 members. The representation of the House was as follows: Alabama, nine; Arkansas, four; Florida, two; Missouri, seven; North Carolina, ten; South Carolina, six; Georgia, ten; Kentucky, twelve; Texas, six; Virginia, sixteen; Mississippi, seven; Louisiana, six; and Tennessee, eleven; total, 106. Of these, the delegations from Missouri and Kentucky were fictitious. The provisional congress held four sessions, and finally adjourned February 17, 1862. The first congress held four sessions, adjourning finally February 18, 1864. The second congress sat from May 2 to June 15, 1864, and from November 7, 1864, to March, 1865. The seat of government was changed from Montgomery to Richmond, Va., early in 1862. Of Davis' cabinets, provisional and permanent, the following were members: State Department—Robert Toombs, of Georgia, February 21, 1861; R. M. T. Hunter, of Virginia, July 30, 1861; Judah P. Benjamin, of Louisiana, February 7, 1862. Treasury—Charles G. Memminger, South Carolina, February 21, 1861; James L. Trenholm, South Carolina, June 13, 1864. War—L. P. Walker, Mississippi, February 21, 1861; J. P. Benjamin, November 10, 1861; James A. Seddon, Virginia, March 22, 1862; John C. Breckenridge, Kentucky, February 15, 1865. Navy—Stephen R. Mallory, Florida, March 4, 1861. Attorney-General—J. P. Benjamin, February 21, 1861; Thomas H. Watts, Alabama, September 10, 1861; George Davis, North Carolina, November 10, 1863. Postmaster General—Henry J. Ellet, Mississippi, February 21, 1861; John H. Reagan, Texas, March 6, 1861. The dates given are those of the respective appointments. The South had the advantage

of able leaders in the field; the disadvantage of over-rated and incompetent men of affairs. Its congress met principally in secret, and its actual government was an ill-balanced military despotism. From almost the beginning, the blockade, which destroyed at once all legitimate foreign commerce, pressed with iron heel upon the isolated South. Its financial difficulties began with its conception, increased with its adolescence, and culminated with its military downfall. Its paper currency, based on cotton which could not be sold, became utterly worthless long before the close of the struggle. Its diplomatic transactions were a failure from the beginning. So, too with the attempt to raise a navy. The piratical Alabama and her congeners destroyed many Northern merchantmen, and were the means of diverting much trade into neutral bottoms, but the Confederacy achieved little success at sea. When the war ended, the States which had been in rebellion laid down their arms, order was restored, and in a comparatively short period the traces of the struggle were obliterated. The institution of human slavery was doomed when the first gun was fired at Sumter, and with this disturbing element removed the interests of North and South are bound together closer than ever before. The interests of all sections are now identical, and the men who fought for secession recognize and acknowledge the benefits which have followed the downfall of disunionism.

CONFESSION is a verbal acknowledgment of sin. Among the Jews it was the custom, on the annual feast of expiation, for the high priest to make confession of sins to God in the name of the whole people. Besides this general confession, the Jews were enjoined, as a first principle of their religion, to confess their sins individually to God. Herein, indeed, lay one marked and leading feature of difference between their creed and that of the heathen around them. The Jew was taught to regard his Maker as a merciful God, who forgives sin (Mic. vii. 18, 19; Isa. lvii. 16-19). While, however, the contrite heart was insisted on as the all-important element on man's part, outward signs of humiliation were valued as tokens and manifestations of the inward sentiment, as is seen in such cases as those of David, Ahab, and the captives who returned from Babylon (2 Sam. xii. 16; 1 Kings xxii. 27; Neh. ix. 2, 3). Such conduct implied admission of wrong-doing before man as well as before heaven. In some cases, as in that of Acham (Josh. vii. 19), acknowledgment before man was demanded. In others, as in those involving sin or trespass offerings, some degree of acknowledgment to the priest seems to be implied (Lev. iv. v.). Restitution of things stolen, and general reparation for injustice were also enjoined (Ezek. xxxiii. 15, etc.) as evidences of sincerity.

In the Christian church public offenders were from an early period put to open penance. We find St. Paul enjoining this, but subsequently interceding that the offender be not dealt with too severely (1 Cor. v. 2; 2 Cor. ii. 6, 7). The growth of private (or *auricular*) confession is more difficult to trace. Even those who would be most inclined to represent it as primitive, admit that for the first three centuries little or no mention is made of any such practice; and though they would fain attribute such silence to persecution, or to the reverse, known as the *disciplina arcani*, they seem inclined to admit that private confession was a development, and grew up gradually. Passages from the fathers, such as St. Cyprian, St. Basil, St. Gregory of Nyssa, and others, recommending the practice, have to be confronted with the small prominence given to it in the works of St. Augustine, and the strong declaration of St. Chrysostom on the sufficiency of confession to God. But the practice gradually became more common, especially in the

West, and more a matter of rule and precept; until at length, in the fourth Lateran Council, held under Pope Innocent III., in 1215, it was enjoined upon all members of the Church of Rome once a year, by the famous twenty-first canon, beginning with the words, *Omnis utriusque sexus fidelis*. The mediæval church of the West fixed the number of sacraments as seven, and insisted on auricular confession as an essential part of the sacrament of penance. Confession and absolution were reserved for the priesthood. Yet a certain recognition of a quasi-priestly power, residing in the church at large, and in some sense, therefore, in the laity, appears in the Roman office books, and we find layman, in cases of extreme emergency, confessing and absolving each other. (An instance occurs in one of the earliest and most admirable of French biographies, Joinville's *Life of St. Louis*.) Russia appears now to be the country where, at least in theory, confession is most insisted upon as a certificate of annual confession (often, it is said, purchased) is a condition of being a witness in court.

At the Reformation, the reformed communities were unanimous in rejecting enforced auricular confession, but it is a mistake to suppose that they were equally unanimous in reprobating its use in cases where it was sought by the free choice of penitents. The Augsburg Confession retains it, and Melancthon asserts that many frequently availed themselves of it. Luther did not even deny its claim to a sacramental character; nor has it ever died out among the Lutherans. But the sacramental character is denied by Calvin and the Calvinistic churches generally.

It remains to add, that the terms *confessor* and *confessional* are used by ecclesiastical writers in very distinct senses, which can only be judged of by the context in which they are found. The statement that a given priest is the confessor—say of the king of Spain—means, of course, that he is the person to whom that sovereign confesses; but the term found simply after a name, as “St. Leonard, confessor,” means that the person so designated underwent more or less suffering on behalf of the Christian faith, though he may not have been an actual martyr. This latter sense is the usual one in ancient writers. In like manner the term *confessional*, which is now commonly employed to signify the structure placed in Roman Catholic churches for the purpose of hearing confessions, meant originally, in Christian antiquity, the place where a martyr had been buried. It was subsequently applied to a tomb built over a spot thus hallowed either in the crypt or in the upper part of the church.

CONFIRMATION, an ecclesiastical term denoting the laying on of hands, in the admission of baptized persons to the enjoyment of full Christian privileges. The antiquity of this ceremony is, by all the older writers, carried as high as the apostles, and founded upon their example and practice. In the primitive church, the ceremony was performed immediately after baptism, if the bishop were present at the solemnity. Among the Greeks, and throughout the East, it still accompanies baptism; but the Roman Catholics make it a distinct and independent sacrament. Seven years is the stated but not the uniform age for confirmation. The view put forth in the English prayer book is, that the person confirmed releases his godfather and godmother, by taking upon himself the baptismal vows in their place,—an aspect of the matter not apparently recognized in the ancient church, which regarded it almost exclusively as a means of grace and a preparation for the reception of the Holy Communion. This ordinance is usually reserved for the bishop only. It has, however, always been a moot point, whether he may not delegate a presbyter to perform it for him. Such delegation is not

uncommon in the Eastern churches, but is practically unknown in the West. The Calvinists (in common with the most non-episcopal communities) have always rejected confirmation.

CONFUCIUS, the famous sage of China (550 or 551 478 B.C.) They are very few among all the millions of the Chinese people who would not heartily repeat the lines with which the first paragraph in a popular history of the sage concludes:—

“Confucius! Confucius! How great was Confucius!
Before him there was no Confucius,
Since him there has been no other.
Confucius! Confucius! How great was Confucius!”

The man whose memory is thus cherished by a third portion of the human race, and the stamp of whose character and teachings is still impressed, after so long a time, on the institutions of his country, demands our careful study. In order to understand the events of his life and the influence of his opinions, we must endeavor to get some impression of the China that existed in his time, in the fifth and sixth centuries before the Christian era.

The dynasty of Chow, the third which within historic time had ruled the country, lasting from 1122 to 256 B.C., had passed its zenith, and its kings no longer held the scepter with a firm grasp. It must not be supposed that the territory under their sway extended over all the eighteen provinces which now constitute what is called “China proper.” It was not a sixth part of the present empire.

Within this China of the Chow dynasty there might be a population, in Confucius’ time, of from 10,000,000 to 15,000,000.

Confucius appeared, according to Mencius, one of his most distinguished followers (371–288 B.C.), at a crisis in the nation’s history. “The world,” he says, “had fallen into decay, and right principles had disappeared. Perverse discourses and oppressive deeds were waxen rife. Confucius was frightened by what he saw, and he undertook the work of reformation.”

The sage was born in the year 550 B.C. His clan name was K’ung, and it need hardly be stated that Confucius is merely the Latinized form of K’ung Fu-tze, meaning “the philosopher or master K’ung.” He was a native of the State of Lu, a part of the modern Shang-tung, embracing the present department of Yenchow and other portions of the province. Lu had a great name among the other States of Chow, its marquises being descended from the duke of Chow, the legislator and consolidator of the dynasty which had been founded by his father and brother, the famous kings Wan and Wu. Confucius’ own ancestry is traced up, through the sovereigns of the previous dynasty of Shang, to Hwang-ti, whose figure looms out through the mists of fable in prehistoric times.

For some years after this our information about Confucius is scanty. Hints, indeed, occur of his devotion to the study of music and of ancient history, and we can perceive that his character was more and more appreciated by the principal men of Lu. He had passed his thirtieth year, when, as he tells us, “he stood firm” in his convictions on all the subjects to the learning of which he had bent his mind fifteen years before. In 517 B.C. two scions of one of the principal houses in Lu joined the company of his disciples in consequence of the dying command of its chief, and being furnished with the means by the marquis of the State, he made a visit with them to the capital of the kingdom. There he examined the treasures of the royal library, and studied the music which was found in its highest style

at the court. There, too, according to Szema Ts'in, he had several interviews with Lao-tze, the father of Taoism. It is characteristic of the two men, that the latter, a transcendental dreamer, appears to have thought little of his visitor, while Confucius, an inquiring thinker, was profoundly impressed with him.

On his return to Lu, in the same year, that state fell into great disorder. The marquis was worsted in a struggle with his ministers, and fled to the neighboring state of Ts'i. Thither also went Confucius, for he would not countenance by his presence the men who had driven their ruler away. He was accompanied by many of his disciples; and as they passed by the T'ai Mountain, an incident occurred, which may be narrated as a specimen of the way in which he communicated to them his lessons. The attention of the travelers was arrested by a woman weeping and wailing at a grave. The sage stopped, and sent one of his followers to ask the reason of her grief. "My husband's father," said she, "was killed here by a tiger, and my husband also, and now my son has met the same fate." Being asked why she did not leave so fatal a spot, she replied that there was no oppressive government. "Remember this," said Confucius to his disciples, "remember this, my children: oppressive government is fiercer and more feared than a tiger."

He did not find in Ts'i a home to his liking. The marquis of the state was puzzled how to treat him. The teacher was not a man of rank, and yet the prince felt that he ought to give him more honor than rank could claim. Some counselors of the court spoke of him as "impracticable and conceited with a thousand peculiarities." It was proposed to assign him a considerable revenue, but he would not accept it while his counsels were not followed. Dissatisfactions ensued, and he went back to Lu.

There for fifteen more years he continued in private life prosecuting his studies, and receiving many accessions to his disciples. He had a difficult part to play with the different parties in the state, but he adroitly kept himself aloof from them all; at last, in his fifty-second year, he was made chief magistrate of the city of Chung-too. A marvelous reformation, we are told, forthwith ensued in the manners of the people, and the marquis, a younger brother of the one that fled to Ts'i and died there, called him to a higher office. He was finally appointed minister of crime,—and there was an end of crime. Two of his disciples at the same time obtained influential positions in the two most powerful clans of the state, and coöperated with him. He signalized his vigor by the punishment of a great officer and in negotiations with the state of Ts'i. He labored to restore to the marquis his proper authority, and as an important step to that end, to dismantle the fortified cities where the great chiefs of clans maintained themselves like the barons of feudal Europe. For a couple of years he seemed to be master of the situation. "He strengthened the ruler," it is said, "and repressed the barons. A transforming government went abroad. Dishonesty and dissoluteness hid their heads. Loyalty and good faith became the characteristics of the men, and chastity and docility those of the women. He was the idol of the people, and flew in songs through their mouths."

The sky of bright promise was soon overcast. The marquis of Ts'i and his advisers saw that if Confucius were allowed to prosecute his course, the influence of Lu would become supreme throughout the kingdom, and Ts'i would be the first to suffer. A large company of beautiful women, trained in music and dancing, and a troop of fine horses, were sent to Lu. The bait took; the women were welcomed, and the sage was

neglected. The marquis forgot the lessons of the master, and yielded supinely to the fascinations of the harem. Confucius felt that he must leave the state. The neglect of the marquis to send round according to rule, among the ministers portions of the flesh after a great sacrifice, furnished a plausible reason for leaving the court. He withdrew, though very unwillingly and slowly, hoping that a change would come over the marquis and his counselors, and a message of recall be sent to him. But no such message came; and he went forth in his fifty-sixth year to a weary period of wandering among various states.

It may be well to pause here in the sketch of his life, and consider what his object and hope had been.

A disciple once asked him what he would consider the first thing to be done, if intrusted with the government of a state. His reply was, "The rectification of names." When told that such a thing was wide of the mark, he held to it, and indeed his whole social and political system was wrapped up in the saying. He had told the marquis of Ts'i that good government obtained when the ruler was ruler, and the minister minister, when the father was father, and the son son. Society, he considered, was an ordinance of heaven, and was made up of five relationships,—ruler and subject, husband and wife, father and son, elder brothers and younger, and friends. There was rule on the one side of the first four, and submission on the other. The rule should be in righteousness and benevolence; the submission in righteousness and sincerity. Between friends the mutual promotion of virtue should be the guiding principle. It was true that the duties of the several relations were being continually violated by the passions of men, and the social state had become an anarchy. But Confucius had confidence in the preponderating goodness of human nature, and in the power of example in superiors. "Not more surely," he said, "does the grass bend before the wind than the masses yield to the will of those above them." Given the model ruler, and the model people would forthwith appear. And he himself could make the model ruler. He could tell the princes of the states what they ought to be; and he could point them to examples of perfect virtue in former times—to the sage founders of their own dynasty; to the sage T'ang, who had founded the previous dynasty of Shang; to the sage Yu, who first established a hereditary kingdom in China; and to the greater sages still who lived in a more distant golden age. With his own lessons and those patterns, any ruler of his day *who would listen to him*, might reform and renovate his own state, and his influence would break forth beyond its limits till the face of the whole kingdom should be filled with a multitudinous relation-keeping, well-fed, happy people. "If any ruler," he once said, "would submit to me as his director for twelve months, I should accomplish something considerable; and in three years I should attain the realization of my hopes." Such were the ideas, the dreams of Confucius. But he had not been able to get the ruler of his native state to listen to him. His sage counsels had melted away before the glance of beauty and the pomps of life.

His professed disciples amounted to 3,000, and among them were between seventy and eighty whom he described as "scholars of extraordinary ability." The most attached of them were seldom long away from him. They stood or sat reverently by his side, watched the minutest particulars of his conduct, studied under his direction the ancient history, poetry, and rites of their country, and treasured up every syllable which dropped from his lips. They have told us how he never shot at a bird perching, nor fished with a net, the creatures not having in such a case a fair chance for their lives; how

he conducted himself in court and among villagers; how he ate his food, and lay in his bed, and sat in his carriage; how he rose up before the old man and the mourner; how he changed countenance when it thundered, and when he saw a grand display of viands at a feast. He was free and unreserved in his intercourse with them, and was hurt once when they seemed to think that he kept back some of his doctrines from them. Several of them were men of mark among the statesmen of the time, and it is the highest testimony to the character of Confucius that he inspired them with feelings of admiration and reverence. It was they who set the example of speaking of him as the greatest of mortal men; it was they who struck the first notes of that pæan which has gone on resounding to the present day.

Confucius was, it has been seen, in his fifty-sixth year when he left Lu; and thirteen years elapsed ere he returned to it. In this period were comprised his travels among the different states, when he hoped, and ever hoped in vain, to meet with some prince who would accept him as his counselor, and initiate a government that should become the center of an universal reformation. Several of the princes were willing to entertain and support him; but for all that he could say, they would not change their ways.

His first refuge was in Wei, a part of the present Ho-nan, the marquis of which received him kindly; but he was a weak man, ruled by his wife, a woman notorious for her accomplishments and wickedness. In attempting to pass from Wei to another state, Confucius was set upon by a mob, which mistook him for an officer who had made himself hated by his oppressive deeds. He himself was perfectly calm amid the danger, though his followers were filled with alarm. They were obliged, however, to retrace their way to Wei, and he had there to appear before the marchioness, who wished to see how a sage looked. There was a screen between them at the interview, such as the present regent-empresses of China use in giving audience to their ministers; but Tze-lu, one of his principal disciples, was indignant that the master should have demeaned himself to be near such a woman, and to pacify him Confucius swore an oath appealing to Heaven to reject him if he had acted improperly. Soon afterward he left the state.

Twice again, during his protracted wanderings, he was placed in imminent peril, but he manifested the same fearlessness, and expressed his confidence in the protection of Heaven till his course should be run. On one of the occasions he and his company were in danger of perishing from want, and the courage of even Tze-lu gave way. "Has the superior man, indeed, to endure in this way?" he asked. "The superior man may have to endure want," was the reply, "but he is still the superior man. The small man in the same circumstances loses his self-command."

It was in his sixty-ninth year, 483 B.C., that Confucius returned to Lu. One of his disciples, who had remained in the state, had been successful in the command of a military expedition, and told the prime minister that he had learned his skill in war from the master — urging his recall, and that thereafter mean persons should not be allowed to come between the ruler and him. The state was now in the hands of the son of the marquis whose neglect had driven the sage away; but Confucius would not again take office. Only a few years remained to him, and he devoted them to the completion of his literary tasks, and the delivery of his lessons to his disciples.

The next year was marked by the death of his son, which he bore with equanimity. His wife had died

many years before, and it jars upon us to read how he then commanded the young man to hush his lamentations of sorrow. We like him better when he mourned, as has been related, for his own mother. It is not true, however, as has often been said, that he had divorced his wife before her death. The death of his favorite disciple, Yen Hwui, in 481 B.C., was more trying to him. Then he wept and mourned beyond what seemed to his other followers the bounds of propriety, exclaiming that Heaven was destroying him. His own last year, 478 B.C., dawned on him with the tragie end of his next beloved disciple, Tze-lu. Early one morning, we are told, in the fourth month, he got up, and with his hands behind his back, dragging his staff, he moved about his door, crooning over—

"The great mountain must crumble;
The strong beam must break;
The wise man must wither away like a plant."

Tze-kung heard the words, and hastened to him. The master told him a dream of the previous night, which, he thought, presaged his death. "No intelligent ruler," he said, "arises to take me as his master. My time has come to die." So it was. He took to his bed, and after seven days expired. Such is the account we have of the last days of the sage of China. His end was not unimpressive, but it was melancholy. Disappointed hopes made his soul bitter. No wife nor child was by to do the offices of affection, nor was the expectation of another life with him, when he passed away from among men. He uttered no prayer, and he betrayed no apprehension. Years before, when he was very ill, and Tze-lu asked leave to pray for him, he expressed a doubt whether such a thing might be done, and added, "I have prayed for a long time." Deep-treasured now in his heart may have been the thought that he had served his generation by the will of God; but he gave no sign.

When their master thus died, his disciples buried him with great pomp. A multitude of them built huts near his grave, and remained there mourning as for a father, for nearly three years; and when all the rest were gone, Tze-kung, the last of his favorite three, continued alone by the grave for another period of the same duration. The news of his death went through the states as with an electric thrill. The man who had been neglected when alive seemed to become all at once an object of unbounded admiration. The tide began to flow which has hardly ever ebbed during three-and-twenty centuries.

The grave of Confucius is in a large rectangle separated from the rest of the K'ung cemetery, outside the city of K'uh-fow. A magnificent gate gives admission to a fine avenue, lined with cypress trees and conducting to the tomb, a large and lofty mound, with a marble statue in front bearing the inscription of the title given to Confucius under the Sung dynasty:—"The most sagely ancient Teacher; the all-accomplished, all-informed King." A little in front of the tomb, on the left and right, are smaller mounds over the graves of his son and grandson, from the latter of whom we have the remarkable treatise called *The Doctrine of the Mean*. All over the place are imperial tablets of different dynasties, with glowing tributes to the one man whom China delights to honor; and on the right of the grandson's mound is a small house said to mark the place of the hut where Tze-kung passed his nearly five years of loving vigil. On the mound grow cypresses, acacias, what is called "the crystal tree," said not to be elsewhere found, and the *Achillea*, the plant whose stalks were employed in ancient times for purposes of divination.

The adjoining city is still the home of the K'ung

family; and there are said to be in it between 40,000 and 50,000 of the descendants of the sage. The present chief of the family is in the line of the seventy-fifth generation, and has large estates by imperial gift, with the title of "Duke by imperial appointment and hereditary right, continuator of the sage." It is thus no empty honor which is still given by the sovereigns of China to Confucius, in the persons of his descendants.

The dynasty of Chow finally perished two centuries and a quarter after the death of the sage at the hands of the first historic emperor of the nation,—the first of the dynasty of Ts'in, who swept away the foundations of the feudal system, and laid those of the despotic rule which was subsequently and gradually matured, and continues to the present day. State after state went down before his blows, but the name and followers of Confucius were the chief obstacles in his way. He made an effort to destroy the memory of the sage from off the earth, consigning to the flames all the ancient books from which he drew his rules and examples (save one), and burying alive hundreds of scholars who were ready to swear by his name. But Confucius could not be so extinguished. The tyranny of Ts'in was of short duration; and the next dynasty, that of Han, while entering into the new China, found its surest strength in doing honor to his name, and trying to gather up the wreck of the ancient books. It is a great and difficult undertaking to determine what there was about Confucius to secure for him the influence which he has wielded. Reference has been made to his literary tasks; but the study of them only renders the undertaking more difficult. He left no writings in which he detailed the principles of his moral and social system. *The Doctrine of the Mean*, by his grandson Tze-sze, and *The Great Learning*, by Ts'ang Sin, the most profound, perhaps, of his disciples, give us the fullest information on that subject, and contain many of his sayings. The *Lun Yu*, or *Analects*, "Discourses and Dialogues," is a compilation in which many of his disciples must have taken part, and has great value as a record of his ways and utterances; but its chapters are mostly *dissecta membra*, affording faint traces of any guiding method or mind. Mencius, Hsiin K'ing, and writers of the Han dynasty, whose works, however, are more or less apocryphal, tell us much about him and his opinions, but all in a loose and unconnected way. No Chinese writer has ever undertaken to compare him with the philosophers and sages of other nations.

The sage, probably, did not think it necessary to put down many of his own thoughts in writing, for he said of himself that he was "a transmitter, and not a maker." Nor did he lay claim to have any divine revelations. He was not born, he declared, with knowledge, but was fond of antiquity, and earnest in seeking knowledge there. The rule of life for men in all their relations, he held, was to be found within themselves. The right development of that rule, in the ordering not of the individual only, but of society, was to be found in the words and institutions of the ancient sages.

A few of his more characteristic sayings may here be given, the pith and point of which attest his discrimination of character, and show the tendencies of his views:—

"What the superior man seeks is in himself; what the small man seeks is in others."

"The superior man is dignified, but does not wrangle; social, but not a partisan. He does not promote a man simply because of his words, nor does he put good words aside because of the man."

"A poor man who does not flatter, and a rich man who is not proud, are passable characters; but they are not equal to the poor who yet are cheerful, and the rich who yet love the rules of propriety."

"Learning, undigested by thought, is labor lost, thought, unassisted by learning, is perilous."

"In style all that is required is that it convey the meaning."

"Extravagance leads to insubordination, and parsimony to meanness. It is better to be mean than insubordinate."

"A man can enlarge his principles; principles do not enlarge the man." That is, man is greater than any system of thought.

"The cautious seldom err."

Sententious sayings like these have gone far to form the ordinary Chinese character. Hundreds of thousands of the literati can repeat every sentence in the classical books; the masses of the people have scores of the Confucian maxims, and little else of an ethical nature, in their memories,—and with a beneficial result.

Confucius laid no claim, it has been seen, to divine revelations. Twice or thrice he did vaguely intimate that he had a mission from heaven, and that until it was accomplished he was safe against all attempts to injure him; but his teachings were singularly devoid of reference to anything but what was seen and temporal.

CONGER, or CONGER-EEL, a marine bony fish in the eel family (*Murænidae*). The body is eel-like, without pelvic fins, with a continuous dorsal fin beginning very far forward, and without scales. The length varies from 3 to 6 feet, or even more; the color is dark-gray or bluish above, whitish below; the mouth is wide; the tongue free; the teeth in rows, one closely packed series forming a sharp edge. Four species occur widely distributed in temperate and tropical seas. *Conger vulgaris* is common on the British coasts, especially off Cornwall. Giant specimens, 10 feet in length, 18 inches in girth, over 100 lbs. in weight, are recorded; and even ordinary specimens left aground among the rocks, or landed unexpectedly on board a boat, are awkward customers to deal with. They are very muscular and voracious fishes, feeding on comparatively large prey, and have remarkably strong biting powers. They often rotate rapidly on their own axis, and have a certain degree of grasping power with their tails. The color seems to vary with habitat, since those from rocks are blacker than those from sand-banks. They occur from the shore down to about 50 fathoms, and are extremely prolific. The flesh is coarse, but is often enough eaten. What is called turtle soup is believed to be often made mainly of conger-eel. See Day's BRITISH FISHES.

CONGE D'ELIRE, a license from the crown issued under the Great Seal to the dean and chapter of the cathedral church of the diocese, authorizing them to elect a bishop or archbishop, as the case may be, upon the vacancy of any episcopal or archi-episcopal see in England or in Wales. It is the actual equivalent of an election.

CONGLETON, a market-town and municipal borough of England, in the County of Cheshire, near the border of Staffordshire, twenty-six miles south of Manchester by rail. Population (1889), 12,000.

CONGLETON, HENRY BROOK PARNELL, FIRST BARON (1776–1842), was the second son of Sir John Parnell, chancellor of the Irish Exchequer, and was educated at Eton and Cambridge. In 1801 he succeeded to the family estates, and married a daughter of the earl of Portarlington; and in 1802, by his father-in-law's interest, he was returned for Portarlington to Parliament, but he speedily resigned the seat. In 1806 he was returned for Queen's County, for which he sat till 1832, when he withdrew from the representation. In 1833, however, he was returned for Dundee; and after being twice re-elected for the same city (1835 and

1837), he was raised to the peerage in 1841 with the title of Baron Congleton of Congleton. In 1842, having suffered for some time from ill health and melancholy, he committed suicide. He was a liberal Whig, and took a prominent part in the struggle of his party. In 1806 he was a lord of the Treasury for Ireland; it was on his motion on the Civil List that the duke of Wellington was defeated in 1830; in that year and in 1831 he was secretary of war; and from 1835 till 1841 he was paymaster of the forces and treasurer of the ordnance and navy. He was the author of several volumes and pamphlets on matters connected with financial and penal questions.

CONGO, a country of Western Africa, extending along the coast of the Atlantic for about 185 English miles, from the River Zaire, or Congo (see AFRICA), which separates it from Cacongo and Loango on the north, to the Dande, which marks the boundary of Angola on the south. No very definite limit can be assigned on the eastern side; but it is hardly to be regarded as Congo territory at more than 250 miles inland. At one time the name Congo was applied not only to the country thus defined, but also to Loango, Angola, and Benguela—in short, to all the territory claimed by the Portuguese in this part of the continent.

The coast of Congo presents for the most part a succession of low cliffs and bluffs of red sandstone, sinking at intervals almost to the level of the sea; and for about thirty to sixty miles inland the country remains comparatively flat.

The mineral wealth of Congo is only partially explored, and even the deposits that are known to exist are very sparingly utilized.

The climate is in comparison with that of most tropical countries remarkably cool and agreeable.

The flora is rich and various; and the country may be divided with remarkable precision into different zones, distinguished by the prevailing character of the vegetation.

The domestic animals consist chiefly of goats, swine, dogs, and cats; and there are also a few sheep with coats of hair instead of wool. The goats are beautiful creatures, but the swine and dogs are poor and half-starved. No beasts of burden are employed by the natives; and the mules, asses, and camels introduced by the Portuguese died out. Horned cattle there are none, though they thrive well enough on the coast under the white man's care.

The larger wild animals are similar to those of the neighboring countries on the south; but the River Zaire seems to be a natural limit for many species on the north. The variety of birds is remarkable. Flamingoes, spoon-bills, herons, ducks, and various other aquatic species abound in the rivers and marshes. The common African crow, bright-colored starlings, rollers, and doves are very common in the lower country; and sun-birds and other insectivora frequent the palm-trees. The white ant is the most abundant of the insect tribes; and mosquitoes of the most virulent sort are very common.

As regards commerce and navigation, the Congo may be divided into three parts—Lower, Middle, and Upper. The lower region extends from Banana at the mouth to the foot of the first rapids, a distance of 110 miles. Ocean steamers, drawing not more than eighteen feet, can safely navigate this portion. The middle or cataract region extends from Vivi to Stanley Pool, a distance of about 235 miles—a portion of this part of the river—viz.: From Issangila to Manyanga, a distance of seventy miles, is navigable for small steamers or iron whale-boats. The upper region from Stanley Pool to Stanley Falls has an extent of 1,068 miles of navigable water for steamers of a draught not exceeding four feet.

The length of navigable tributaries which enter in this section of the river has been calculated at over 3,000 miles, forming a unique system of waterways.

These discoveries by Mr. Stanley led, in 1878, to the formation of the Association Internationale, under his majesty the king of the Belgians, and this subsequently expanded into the Congo Free State, which, recognized by the European powers assembled at the conference at Berlin in the year 1885, has the following boundaries: The northern bank from the mouth, with a strip of territory averaging about sixty miles in width, as far as Manyanga, situated about 240 miles from Banana, the entrance part of the river. At Manyanga the French territory commences and continues along the north bank, passing Stanley Pool as far as the Mobanga. The territory of the Congo Free State recommences at this river, and the boundary line runs along the left bank as far as the fourth parallel of north latitude, which then becomes the northern boundary of the central portion of the state.

The southern boundary line commences on the river Congo at Wango-Wango, about 100 miles from its mouth; from thence it runs along the parallel of Nokki till it meets the river Kwa, after which it follows the sixth parallel of south latitude. Its eastern boundary is not accurately defined, but it is supposed to follow the watershed of the Nile and Congo to the northeast, and to comprise, on the southeast, the basin of the Congo where it does not conflict with previous interests.

The Congo Free State is governed by an administrative bureau at Brussels, consisting of three secretariats, control, finance, and foreign affairs, under the direct supervision of his majesty the king of the Belgians; also by an administrator on the Congo who has his headquarters at Boma, sixty miles from the sea, on the right bank of the river. The state has stations at Banana, Vivi, Boma, and Matadi, on the Lower Congo; at Lukungu, Issangila, Manyanga, Lutete, on the Middle Congo; and at Leopoldville, Kinshassa, Kwamouth, Lukolela, Equator, Bangala, and Stanley Falls on the Upper Congo. Besides these the State has erected two stations on the Kasai, Luebo, and Luluaberg. All imports are free, and only such export duties are levied as are necessary to carry on the work of administration. It has a coinage and postal service, and has entered into the Postal Union. A road has been surveyed between Matadi and Leopoldville, and by the introduction of ox-wagons the facilities for transport will be largely increased. It is intended to follow this up by a railway. Its present income is derived from an endowment of £40,000 a year bestowed upon it by his majesty the king of the Belgians, and such other sums as are produced by its export dues.

The inhabitants of the Congo basin belong to what has been termed the Bantu race. They are a happy, inoffensive people, not so dark as the Fan or Ethiopian. Split up into numberless tribal communities, they can offer but slight resistance to the advance of civilization; and as they are born traders, they take very readily to commerce. The dialects throughout the country are very numerous, but many of them would appear to have a common original (see BANTU). Even the Swaheli language, spoken by the natives of Zanzibar (who come as porters, etc. into this region), has much in common with the Kishi Congo, or language spoken on the west coast. Of this typical member of the Bantu family, the Rev. W. Holman Bentley has furnished an excellent dictionary and grammar (Lond. 1868). The religion is mainly fetichism; and domestic slavery exists everywhere. This must not be confounded with the slave-trade of the Arabs, and presents none of the revolting cruelties which have aroused the

Indignation of the civilized world.

Much has been said and written about the climate. It is purely tropical, the average temperature ranging between 78° and 82°. Malarial fevers, especially on the coast, are not infrequent, but with care and attention to diet Europeans can remain in the country for several years without change. The interior has been found to be more healthy than on the coast.

The principal products are ivory, palm-oil, palm-kernels, india-rubber, various gums, ground nuts, camwood, beeswax, orchilla, etc. The country, however, is still undeveloped. Wild coffee, tobacco, and hill rice are cultivated on the upper river, also various kinds of maize and sorghum. Tropical fruits, such as bananas, pine-apples, and mangoes, abound. The total value of the special exports (principally ivory and palm-oil and kernels) from the Congo in 1887 was returned at 79,218 pounds, and of the general exports at 306,720. No minerals of importance have as yet been discovered.

CONGREGATIONALISM, a designation assumed of late years by the religious denomination formerly known as Independents. This change of name has arisen from no radical alteration in the particular doctrinal or ecclesiastical opinions of that sect (see INDEPENDENTS), but in order to express more definitely the positive aspects of their church life and organization. The negative term Independent implied chiefly a renunciation "of the authority of pope, prelate, presbytery, prince or parliament," and thus brought into prominence the antagonistic position of the churches so named toward National, Episcopal, and Presbyterian Churches. The word Congregational has been now almost universally substituted for it to indicate more clearly the brotherhood and fellowship maintained in their separate communities, the spiritual equality of every member, the right and the duty of all in the church to have a voice in its deliberations and decisions, the essential necessity for each society to originate its own outward forms of life. It is maintained that this conception of a church organization is entirely in harmony with the genius of the New Testament, and is better expressed by the word Congregational than Independent. In this sense it is applicable to other communities, in particular to the Baptists, who sometimes adopt it. Probably another reason for its employment has been the growing tendency toward outward union among churches that were mainly characterized by their isolation from each other. Independency was often regarded as a synonym for non-catholicity, and there was so strict a jealousy against all possible interference from without that close association or united action was exceedingly difficult, even among those whose doctrinal beliefs and ecclesiastical polity were the same.

Congregationalism in the United States has, from the earliest period of its existence, recognized the principle that each Christian society, though complete in itself, is nevertheless related to all other churches of the same faith and order. The weakness and scattered condition of those little communities which followed the settlement of the Pilgrim Fathers threw them into close association; they assisted each other by friendly advice, and from that sprang the system of councils. These have now become important institutions exercising considerable influence. It is claimed that, though every church is "independent of all outward control," "a fraternal fellowship is yet to be maintained among these independent churches; and when insoluble difficulties arise, or specially important matters claim decision—as where a pastor is to be settled or dismissed, or a church itself is to adopt its creed and commence its organic life—it is proper that the advice of other churches should be sought and given in council; such

action, however, in no case being anything more than a labor of fraternal suasion or self-justification." According to a religious census taken by the Government there were in the United States in 1850, 1,725 Congregational churches with 807,335 sittings; these had increased in 1889 to 4,569 churches and 2,500,000 sittings. For the education of the ministry there are seven theological institutions.

CONGRESS, in diplomacy, a term applied to an assemblage of sovereigns or ambassadors of the highest rank, convoked for the purpose of concluding a general peace, or of treating the general political interests of Europe. In this latter sense a modern Congress may be regarded as a representative council of states or nations, by which differences may be adjusted, and the rules of international law determined and enforced. The greatest progress yet made in the relations of sovereign states is, that disputes, which in former times would have led to immediate war, may now be resolved, in many instances, by the common deliberations of the European powers. The term *Congress*, however, is only strictly applicable to meetings of this nature on the most important occasions, and when all the powers are represented.

The first time we have been able to trace the use of the term *Congress* in its modern sense, is in 1636, when the Pope attempted to open negotiations for peace at Cologne, under his own mediation; but the attempt failed, and the Thirty Years' War continued for twelve years more to devastate the world. The final sessions of this Congress began in earnest in June, 1645, and terminated Oct. 24, 1648. It terminated the long contest between France and Austria. It established the equal rights of the Catholic, Lutheran, and Calvinistic churches in Germany. It rendered 350 German princes almost independent of the empire, and it planted the germ of the future greatness of Prussia. This form of the German body remained unaltered till the French Revolution.

A very important Congress was that of 1856, which met in Paris to terminate the Crimean War. Austria and Prussia, though not actual belligerents, were admitted to take part in the deliberations and general acts of the Congress, and for the first time in history the ambassadors of the Ottoman Porte appeared at a European Congress, and were formally received into the concert of the great powers.

After the close of the Russo-Turkish war of 1877-78 representatives of the great powers of Europe met in Berlin for the purpose of rearranging the frontiers of Turkey and of the Balkan States. Roumania, Servia, and Montenegro were recognized as independent and received additions of territory. Kars, Batoum, and other Armenian territory were ceded by Turkey to Russia. Bulgaria became an autonomous principality (with which Eastern Roumelia has since been incorporated). Bosnia and Herzegovina were placed under the protectorate of Austria, and Turkey agreed to initiate reforms in Crete and Asia Minor, a promise which has not been kept. Russia also secured the freedom of the Black Sea.

The sense in which the people of the U. S. understand the word *Congress* is as applying to the national legislature, and often, in its ordinary use, as applying to the lower house of that body. Our Congress consists of a House of Representatives and a Senate. The first is composed of members elected to serve two years, and their qualifications under the Constitution are that they shall be twenty-five years old, shall have been seven years citizens of the United States, and shall at the time of election be residents of the States from which they are chosen. The number

of representatives is determined by population of each State, and a new apportionment is made every ten years. The number of representatives shall never exceed one for each 30,000 population.

The Senate is composed of two members from each State, and these are chosen by the legislature of the State for terms of six years. In the beginning of State representation in Congress the two Senators draw lots after election, and one of them serves four years only, and ever after, under the provisions of the Constitution, their terms expire alternately, two years apart. The executive of a State can only appoint to fill a senatorial vacancy until the next session of the State legislature, when the vacancy must be filled by election. A Senator must be thirty years old, have been a citizen of the U. S. nine years, and must, as in the case of a representative, be a resident of his State at the time of his election.

The separate powers of the two houses of Congress are few, but very marked. On the one hand the Senate is, upon occasion, a high court for the trials of impeachments. In the lower house alone can originate any bill for raising revenue. All bills must, however, pass both houses, and must be subjected to the final approval of the President. A bill may, however, be passed against the veto by a two-thirds majority.

The special and perfunctory powers of Congress are very specifically set forth by the Constitution. They are limited by this in minute and pains-taking detail, and are separated from those of the State legislatures. Members of Congress are free from liability to arrest during their attendance upon their duties except for treason, felony and breach of the peace. They may not hold any other office, or receive benefit from any increase of compensation voted by themselves, or receive the emoluments of any office created by them, or be sharers in any gains or profits produced directly or indirectly by any act of Congress. This is not directly the language of the Constitution, but it is the interpretation necessarily given to the second clause of section VI of that document. Section VIII prescribes and particularly defines the powers and duties of Congress, beyond which it cannot go, and within which it must necessarily act. The wisdom of these restrictions has had many tests, and the student of history finds himself wondering at the singular prescience, the unexampled wisdom, that could in that early day, have so foreseen and provided for the emergencies of a great nation then in the earliest stages of construction.

CONGREVE, WILLIAM (1670-1729), the greatest English master of pure comedy, was born, according to the latest and likeliest accounts, in 1670, according to the inscription on his monument, in 1672; and whether in England or in Ireland, at Bardsey, near Leeds, or at some place unknown beyond St. George's channel, has likewise been matter of doubt and dispute; but we may presumably accept the authority of Lord Macaulay, who decides against Dr. Johnson in favor of the later date, and dismisses without notice the tradition of an Irish birthplace. To Ireland, at all events, is due the credit of his education,—as a schoolboy at Kilkenny, as an under-graduate at Dublin. From college he came to London, and was entered as a student of law at the Middle Temple. The first fruits of his studies appeared under the boyish pseudonym of "Cleophil," in the form of a novel whose existence is now remembered only through the unabashed avowal of so austere a moralist as Dr. Johnson, that he "would rather praise it than read it." In 1693 Congreve's real career began, and early enough by the latest computation, with the brilliant appearance and instant

success of his first comedy, *The Old Bachelor*, under the generous auspices of Dryden, then as ever a living and immortal witness to the falsehood of the vulgar charge which taxes the greater among poets with jealousy or envy, the natural badge and brand of the smallest that would claim a place among their kind. The discrowned laureate had never, he said, seen such a first play; and indeed the graceless grace of the dialogue was as yet only to be matched by the last and best work of Etherege, standing as till then it had done alone among the barefaced brutalities of Wycherley and Shadwell. The types of Congreve's first work were the common and conventional properties of stage tradition; but the fine and clear-cut style in which these types were reproduced was his own. The gift of one place and the reversion of another were the solid fruits of his splendid success. Next year a better play from the same hand met with worse fortune on the stage, and with yet higher honor from the first living poet of his nation. The noble verses, as faultless in the expression as reckless in the extravagance of their applause, prefixed by Dryden to *The Double Dealer*, must naturally have supported the younger poet, if indeed such support can have been required, against the momentary annoyance of assailants whose passing clamor left uninjured and secure the fame of his second comedy; for the following year witnessed the crowning triumph of his art and life, in the appearance of *Love for Love*. Two years later his ambition rather than his genius ventured on the foreign ground of tragedy, and *The Mourning Bride* began such a long career of good fortune as in earlier or later times would have been closed against a far better work. Next year he attempted, without his usual success, a reply to the attack of Jeremy Collier, the nonjuror, "on the immorality and profaneness of the English stage,"—an attack for once not discreditable to the assailant, whose honesty and courage were evident enough to approve him incapable alike of the ignominious precaution which might have suppressed his own name, and of the dastardly mendacity which would have stolen the mask of a stranger's. Against this merit must be set the mistake of confounding in one indiscriminate indictment the levities of a writer like Congreve with the brutalities of a writer like Wycherley,—an error which ever since has more or less perverted the judgment of succeeding critics. The general case of comedy was then, however, as untenable by the argument as indefensible by the sarcasm of its most brilliant and comparatively blameless champion. Art itself, more than anything else, had been outraged and degraded by the recent school of the Restoration; and the comic work of Congreve, though different rather in kind than in degree from the bestial and blatant license of his immediate precursors, was inevitably for a time involved in the sentence passed upon the comic work of men in all ways alike his inferiors. The true and triumphant answer to all possible attacks of honest men or liars, brave men or cowards, was then as ever to be given by the production of work unarraignable alike by fair means or foul, by frank impeachment or furtive imputation. In 1700 Congreve thus replied to Collier with the crowning work of his genius—the unequalled and unapproached master-piece of English comedy. The one play in our language which may fairly claim a place beside or but just beneath the mightiest work of Molière is *The Way of the World*. On the stage which had recently acclaimed with uncritical applause the author's more questionable appearance in the field of tragedy, this final and flawless evidence of his incomparable powers met with a rejection then and ever since inexplicable on any ground of conjecture. During the twenty-eight years which remained to him,

Congreve produced little beyond a volume of fugitive verses, published ten years after the miscarriage of his masterpiece. His even course of good fortune under Whig and Tory governments alike was counterweighed by the physical infirmities of gout and failing sight. He died, January 29, 1729, in consequence of an injury received on a journey to Bath by the upsetting of his carriage; was buried at Westminster Abbey, after lying in state in the Jerusalem Chamber; and bequeathed the bulk of his fortune to the chief friend of his last years, Henrietta, duchess of Marlborough, daughter of the great duke, rather than to his family, which according to Johnson, was then in difficulties, or to Mrs. Bracegirdle, the actress, with whom he had lived longer on intimate terms than with any other mistress or friend, but who inherited by his will only £200.

CONGREVE, SIR WILLIAM, Bart. (1772-1828), the inventor of the Congreve rocket, was the eldest son of Sir William Congreve, Bart., of Walton, in Staffordshire.

CONI (Italian, CUNEO), the capital of the province of the same name, is situated on an eminence at the junction of the Stura and Gesso, forty-six miles southwest by rail from Turin and eighty-six miles northeast from Nice by the Col di Tenda. Population, 24,300.

CONIC SECTIONS. A conic section is the curve in which a plane cuts a cone, which is defined in Euclid's *Elements* as "a solid figure described by the revolution of a right-angled triangle about one of the sides containing the right angle, which side remains fixed." Though the properties of conic sections can be investigated from this point of view, we consider it more advantageous to start from the following definition, which is derived from one of the properties which all conic sections possess in common.

Definition.—If a point move in such a way in a plane that its distance from a fixed point in the plane always bears a fixed ratio to its distance from a fixed straight line in the plane, the point will trace out a conic section.

The curve is called an *ellipse* if the distance from the fixed point is less than, a *parabola* if it is equal to, and a *hyperbola* if it is greater than, the distance from the fixed straight line.

The fixed point is called a *focus*, and the fixed straight line a *directrix* of the curve.

The fixed ratio of the distance from the focus to the distance from the directrix is called the *eccentricity* of the curve.

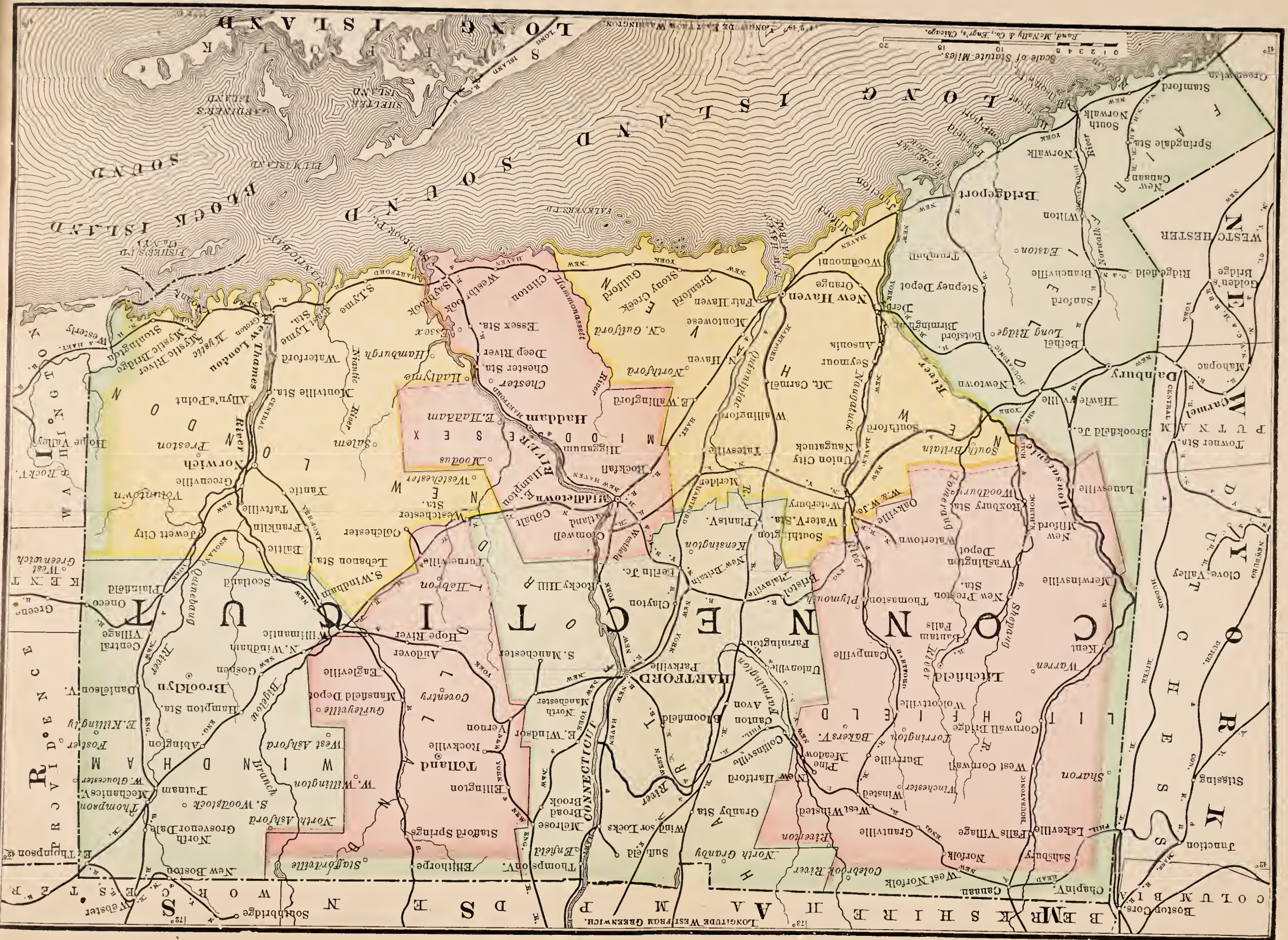
The discovery of the conic sections seems to have originated in the school of Plato. It is probable that the followers of that philosopher were led to the discovery of these curves, and to the investigation of many of their properties, in seeking to resolve the two famous problems of the duplication of the cube and the trisection of an angle, for which the artifices of the ordinary or plane geometry were insufficient. Two solutions of the former problem, by the help of the conic sections, are preserved by Eutocius, and are attributed by him to Menæchmus, the scholar of Eudoxus, who lived a little after the time of Plato.

The writings of Archimedes that have reached us show that the geometers before his time had advanced a great length in investigating the properties of the conic sections. This author expressly mentions numerous demonstrations of preceding writers, and often refers to properties as known to mathematicians. His own discoveries are worthy of the most profound and inventive genius of antiquity. In the quadrature of the parabola he gave the first and the most remarkable instance that has yet been discovered of the exact equality of a curvilinear to a rectilinear space. He determined

the proportion of the elliptic spaces to the circle; and he invented many propositions respecting the mensuration of the solids formed by the revolution of the conic sections about their axes.

It is chiefly from the writings of Apollonius of Perga that we know how far the ancient mathematicians carried their speculations concerning these curves. (See APOLLONIUS.) His work on the conic sections, written in eight books, was held in such high estimation by the ancients as to procure for him the name of the Great Geometer. The first four books of this treatise only have come down to us in the original Greek; in these the author claims no further merit than that of having collected, amplified, and arranged the discoveries of preceding mathematicians. One improvement he introduced deserves particular notice. The geometers who preceded him derived each curve from a *right cone*, which they conceived to be cut by a plane perpendicular to its slant side; and Apollonius was the first to show that all the curves are produced from any sort of cone, whether right or oblique, according to the different inclinations of the cutting plane. An Arabic MS. discovered in 1658, and two others brought from the East a few years later, contain the first seven books of the treatise of Apollonius; the eighth book appears to be irrecoverably lost.

CONINGTON, JOHN, the first occupant of the "Corpus" chair of Latin literature in the University of Oxford, was born on August 10, 1825, at Boston in Lincolnshire. He was a remarkably precocious child, knowing his letters when fourteen months old, and being able to read well at three and a half. After two years' training at Beverley grammar school, he was sent in 1838 to Rugby, where his "remarkable memory and very good scholarship" drew special commendation from Dr. Arnold. In 1843 he went to Oxford, matriculating at University College at midsummer, but entering upon residence in the October term at Magdalen, where in the interval he had been nominated to a demyship. His university distinctions were numerous. Finding no career open to him at the university, and having obtained the Eldon scholarship in 1849, he proceeded to London in fulfillment of its conditions to keep his terms at Lincoln's Inn. The profession of law, however, proved eminently distasteful to him, and after six months he resigned the scholarship, and returned to more congenial work at Oxford. During his brief residence in London he formed a connection with the *Morning Chronicle*, which was maintained for some time. He showed no special aptitude for journalism, but a series of articles on University Reform (1849-50) are noteworthy as the first public expression of his views on a subject that always deeply interested him. In 1854 his appointment to the chair of Latin literature, newly founded by Corpus Christi College, gave him a position which exactly suited him. He had published, in 1848, an edition of the *Agamemnon* of Æschylus with notes and a translation into English verse, and he had devoted much study to the other plays of Æschylus, of which the only published result is the very valuable edition of the *Choephori* (1857). From the time that he became professor, however, he confined himself with characteristic conscientiousness almost exclusively to Latin literature. In 1852 he commenced, in conjunction with Mr. Goldwin Smith, a complete edition of Virgil with a commentary, of which the first volume appeared in 1858, the second in 1864, and the third soon after his death. Mr. Goldwin Smith was compelled to withdraw from the work at an early stage, and in the last volume his place was taken by Mr. Nettleship. In 1863 appeared Conington's translation of the *Odes* and *Carmen Seculare* of Horace. This was followed in 1866 by the



work by which its author is best known to the general public, the translation of the *Aeneid* of Virgil into the octosyllabic metre of Scott, which deservedly takes almost the highest rank in its own department. He died at Boston on October 23, 1869.

CONJEVERAM, a town of Southeastern India, in the district of Chingleput, situated in the valley of the Wegawati, about forty-five miles southwest of Madras, on the route to Arcot. Population, 3,000.

CONJUGATION (Lat. a connecting or yoking together), a term in grammar applied to a connected view or statement of the changes of form that a verb undergoes in its various relations. The forms usually included under this term are those that serve to mark: 1. Person, or the distinction between the speaker, the spoken-to, and the spoken-about; as, (I) write, (thou) writest, (he) writes. 2. Number; as (John) writes, (they) write. 3. Tense, or time; as (I) write, wrote, have written, will write. 4. Mood, or the manner in which the action is presented. When the action is simply asserted, it is the indicative mood, as (he) wrote; when put as a supposition or condition, it is the conditional (subjunctive) mood, as, if he wrote. The potential mood expresses the power of doing the action, as, he can write; and the imperative commands the doing of it—(you) write. The infinitive mood expresses the action without limitation of any kind—to write; as it makes no affirmation, it is, strictly speaking, not a verb, but a kind of abstract noun. The two participles, the one expressing the action as in progress (writing), the other as completed (written) may be classed with the infinitive and the participles, the other parts of the verb are called finite. 5. Voice, or the distinction between active and passive subject, as—active, (he) wrote (the letter); passive, (the letter) was written (by him).

CONJUGATION OF CELLS, a union of two distinct cells of a plant in order to reproduction. It has been observed only in the *Confervaceæ* and *Diatomaceæ*. Two cells come in contact, as by two filaments of a *Conferva* being brought together, and little projections are formed from each, the points of which are absorbed, and thus a tube is formed through which one of the cells empties itself into the other. The latter then becomes a mother-cell, and produces spores.

CONJUNCTION, in Astronomy, is one of the aspects of the planets. Two heavenly bodies are in conjunction when they have the same longitude—that is, when the same perpendicular to the ecliptic passes through both. If they have, at the same time, the same latitude—that is, if they are both equally far north or south of the ecliptic—they appear from the earth to be in the same spot of the heavens, and to cover one another. The sun and moon are in conjunction at the period of new moon.

CONNAUGHT, one of the four provinces of Ireland, occupying the western quarter of the island. It comprises the counties of Galway, Mayo, Sligo, Leitrim, and Roscommon, and contains an area of 6,862 square miles, or 4,392,085 acres, of which 2,889,000 are under cultivation. Population, 850,000.

CONNECTICUT (Indian, *Quonektacat*, i.e., Long River), one of the six New England, and one of the thirteen original States of the American Union, is bounded N. by Massachusetts, E. by Rhode Island, S. by Long Island Sound, W. by New York. The area is 4,750 square miles, or one-tenth of that of New York. The State lies on the S. slope of the hilly regions of New England, with a general surface much diversified; there, is, however, no land above 1,000 feet in elevation. Besides the Connecticut, two other large rivers flow from the N. into the Sound—the Housatonic and the Thames. The Connecticut is the largest river in New

England, rising on the N. border of New Hampshire, 1,600 feet above the sea, flowing S.S.W., separating Vermont and New Hampshire, crossing the W. part of Massachusetts, and central part of Connecticut, flowing S.S.E. below Middletown, and falling into the Sound at Saybrook. Its length is more than 400 miles, with a width in Connecticut varying from 500 to 1,000 feet. It is navigable to Middletown (30 miles) for vessels drawing ten feet, and to Hartford (50 miles) for those drawing eight feet. Its principal tributary in Connecticut is the Tunxis, or Farmington, which flows S.E. from the slopes of the Green Mountains in Massachusetts, then abruptly N., and, breaking through the trap range S.E. again to the Connecticut River at Windsor, instead of taking its seemingly natural course to New Haven, whither a part of its waters were formerly carried by the Farmington Canal. The E. part of the State is drained by the Thames, which is formed by the Yantic and Shetucket,—the Quinnebang joining the latter about two miles above. It is navigable to Norwich for the Sound steamers and West India trading vessels. In the W. part of the State is the Housatonic, with its main branch—the Naugatuck—which joins it at Derby. To this place it is navigable for small vessels. Besides these large streams there are very many smaller ones, affording, in their rapid descent from the hills, an immense amount of water power. Geologically the State is chiefly Eozoic, excepting the Triassic Sandstone and post-Tertiary terraces of the Connecticut River valley. There are several well-defined ranges of hill. Of these the Housatonic hills are the most westerly, and extend along that river to the coast. The Green Mountain range, running S. from Vermont, terminates near New Haven. The Blue Hills of Southington—the highest in the state—are a part of the Mount Tom range of Massachusetts, and lie between the Green Mountain range and the Connecticut river. On the E. side of the river is a fourth range which the river crosses at Chatham. While the hills run N. and S., it is noticeable that the three main rivers bend (and on about the same parallel) to the S.E. The ridges and dikes of trap are exceedingly numerous through the center of the state, having been forced up through the red sandstone which is found underlying and on the borders of the trap. These ridges have abrupt columnar W. fronts and gentle E. slopes. The mineral wealth of the state is considerable. Copper is found in the Simsbury mines at Granby, and at Bristol; but these mines have lost their former importance since the working of the abundant and purer ores of Lake Superior. Iron ore is found in great quantities in Salisbury, Kent, Sharon, Cornwall, and Canaan, and has been worked for 125 years. Limestone and marble of the very best quality are found at Canaan, Washington, and Milford. At Portland and Cromwell, on both sides of the Connecticut river, are the well-known immense quarries of freestone largely in demand for building. The excellent slate flagging from Bolton and Haddam is abundant in supply and in great demand. Granite, gneiss, hydraulic lime, tiling slate, clay (fire, potters', and porcelain), and sulphate of baryta are found in great quantities. There were twenty extensive quarries and mines in the state in 1870. There are over 100 miles of deeply indented coast on the Sound (which measures 140 miles by 24 miles), affording excellent harbors. The chief of these are Stonington, New London, Saybrook, New Haven, Bridgeport, and Fairfield. The harbor at New London is one of the best in the country, capacious, and never frozen over. The climate of the state, while very changeable, is very healthful,—the mortality being below the average of the other states. There is scarcely any spring season, but summer opens abruptly about May 3, and the cold

weather begins in November. The winters with their keen N.W. winds, are severe, but the serenity of the sky and dryness of the air make some compensation. The mean temperature of the year is 48° Fahr. Consumption is the most fatal disease, causing 16 per cent. of all the deaths. The vegetation is rich and varied. The most abundant trees are chestnut, walnut, birch, oak, elm, maple, beech, and ash. The forests have been recklessly cut away, and only patches of woodland remain; but the people are waking up to the importance of tree-planting. As for zoölogy, songbirds of all sorts are plentiful, and the grouse and woodcock are increasing under the game laws, after having been nearly killed out. The Sound abounds in the best qualities of fish and shell fish, while the fresh water varieties of the former are found in great quantities in the rivers and ponds. Aside from these there are few animals of importance save the domestic ones.

Hartford is the capital of the state. The principal cities are New Haven, Bridgeport, Norwich, Watertown, Waterbury, Middletown, Meriden, New London, New Britain, and South Norwalk. About one-fourth of the inhabitants of the state are foreign born, chiefly Irish, German, English, French, Canadian, and Scotch.

On July 1, 1890, the State Treasurer reported the receipts for the fiscal year, including a balance of \$530,372 brought forward from the previous year, at \$2,134,552. The expenditures for the same period were \$1,767,250, leaving a balance on hand July 1, 1890, of \$897,674. The State debt was reduced considerably and now (1891) stands at \$3,500,000. The assessed valuation for 1889 was \$358,913,906. The counties have, practically, no bonded indebtedness.

Latest statistics of the State Board of Education are as follows: School houses, 1,645; value of school property, \$6,275,177; children of school age, 157,243; children in public schools, 127,089; in private schools, 18,269; average daily attendance in public schools, 82,382; teachers employed, 3,253. The total revenue for school purposes during the year was \$1,990,000.

The manufacturing interests of Connecticut are of the greatest importance, and it is to be regretted that full statistics of industry are not obtainable, although the State maintains a Bureau of Labor Statistics. The last United States census report showed a total of 4,488 manufacturing establishments, employing 112,915 hands and with an invested capital of \$120,000,000. These figures, however, are entirely inadequate to express the condition of manufacturing industry to-day, while those supplied by the State Bureau are so imperfect as to be absolutely valueless, dealing as they do only with certain leading trades, and only furnishing imperfect data as to those.

There were 1,320 miles of railroad in Connecticut in 1890. The State contains 87 National banks, with an aggregate capital of \$26,050,000.

Connecticut has now six votes in the Presidential electoral college. The state constitution provides distinct executive, legislative, and judicial powers. The chief officer, or governor, must be over thirty years of age. A majority vote in each house of the legislature carries a bill over his veto. His salary is \$2,000. The Legislature, or General Assembly, consists of a senate and house of representatives, and meets annually on the Wednesday after the first Monday in January. The senate consists of not less than eighteen, or more than twenty-four members from districts determined by the General Assembly according to population. The representatives are two from each town incorporated before 1785, or having over 5,000 inhabitants, and one from every other. The senators now number eighteen, the representatives 244. Each

legislator is paid \$300 a year. There is much special and excessive legislation. All elections are by ballot. Representatives are elected annually, and the general State officers and senators biennially, on the Tuesday after the first Monday in November. Any male citizen of the United States, aged twenty-one, who shall have resided in the state one year, and in the town where he offers to vote, six months, and who can read any article of the constitution, is entitled to vote. The pardoning power is vested in the Assembly. The judicial power is vested in the following courts:—A supreme court of errors, consisting of a chief and four associates; a superior court, consisting of six judges, together with five of the court of errors. These are all chosen for eight years by the Assembly, but are disqualified on attaining the age of seventy. They may be removed by impeachment, or by the governor on a two-thirds address of each house. Their salary is \$4,000 each. There are also five courts of common pleas, presided over by a single judge, chosen for four years by the Assembly, with a salary of \$2,500. There are inferior courts in certain cities and boroughs, with judges chosen biennially by the Assembly. Numerous justices of the peace are elected biennially by the people of the towns where they live. Probate courts are held in each district, of which there are 113; the judges are elected biennially by the people. The arms of the state are—three vines in fruit—two and one, all proper—with the motto, "Qui transtulit sustinet."

History.—The Dutch first explored the country in 1620, but made no settlement till 1633. Then they settled at Hartford, buying of the Pequot Indians, but selling soon after to the English. James I. granted the first English patent to all New England, in 1620, to Lord Say-and-Seal and others. In 1634–36 permanent settlements were made at Hartford, Wethersfield, and Windsor by companies from Massachusetts under a patent from the Plymouth colony, covering the present state and also portions of Rhode Island, Massachusetts, Long Island, and an undefined territory to the west. In 1637 these towns organized an independent government, declared war against the Pequots, and, under Captain J. Mason, nearly destroyed the tribes. In 1638 New Haven and vicinity was settled by an English company under Rev. J. Davenport and Governor Eaton. This colony was united to Connecticut in 1662, as was Saybrook in 1644. In 1639 Connecticut, chiefly through the influence of the Rev. J. Hooker of Hartford, adopted a constitution. This was "the first one written out, as a complete form of civil order, in the New World, and embodies all the essential features of the constitutions of the American states, and of the Republic itself, as they exist at the present day. It is the free representative plan which characterizes the country." In this constitution, and during the administration of it (till 1661), the only authority recognized was the "supreme power of the commonwealth," and the people were practically independent. When Charles II. came to the throne, J. Winthrop, Jr., succeeded, in 1662, in obtaining a most liberal charter, which constituted Connecticut so completely a self-governed colony that no changes were needed in the instrument when she became one of the American states. Nor was it altered till 1818. From 1685 to 1687 James II. made strenuous efforts to take away all the New England charters; and in the latter year, Sir E. Andross, the royally appointed governor, came to Hartford while the Assembly was sitting, and demanded the charter. It was, however, concealed in the famous Charter Oak; and, at the dethronement of James II. in 1689 (after a year and a half of oppressive rule by Andross), the colonial Government resumed its functions as if nothing had hap-

pened. From the union of the colonies, Hartford was the seat of Government till 1701, from which date it shared the honor with New Haven until 1874, when it became the sole capital. The code, commonly called the *Blue Laws of Connecticut*, is now generally considered to have been a forgery by the Rev. Samuel Peters. The early statutes were not peculiarly severe or intolerant, and no case of execution for witchcraft is known. During the French and Indian wars Connecticut supplied her full quota of soldiers; and, during the revolt of the colonies, she furnished more men in proportion to her population, and more aid in proportion to her wealth, than any other colony. A few days before the Declaration of Independence she instructed her delegates to propose such a measure. The efficient and wise governor at the time, whom Washington used to call Brother Jonathan (Trumbull), has bequeathed his nickname to the country. Connecticut ratified the U. S. Constitution, January 9, 1788, being the fifth colony to do so. She took an active part in the war of 1812, though it cost the ruin of her West India and coasting trade. The present constitution was adopted in 1818, doing away with slavery, and being otherwise remarkable for its liberality and wisdom. It has been considerably amended to meet the needs of increased and differently distributed population, and of industrial progress. Under Governor Buckingham the state took a very prominent part in the civil war of 1861-65. She furnished 54,882 men, mostly for three years; and the war expenses, not only of the state and towns, but of private individuals, were enormous. The administration of the government since has been unusually honest and cautious, owing to the even balance of the political parties who alternate in its conduct. There is no just and complete history of the state, but its records from 1636 are preserved, and furnish the best source of information. The general histories of Bancroft and Palgrave, and the special ones of Trumbull, Hollister, and Barber, present the history very fairly down to the present century. There is a bulky history of *Connecticut during the War of 1861-65*, by Crofut and Morris. In Hartford is an enterprising historical society with some published collections. The reports of the Board of Education are valuable in this connection.

The total population, as enumerated by the U. S. census of 1890, was 746,258. The State is represented in Congress by two senators and four representatives.

The report of the U. S. Department of Agriculture for 1889 gives the following as the chief field products of the State: Corn, 1,778,000 bushels; wheat, 32,000; rye, 348,000; oats, 1,055,000; barley, 14,000; buckwheat, 134,000; potatoes, 2,677,000 bushels; hay, 574,419 tons, and tobacco, 9,603,000 pounds. The estimated value of all these was \$13,112,938. Of live stock there were in January, 1890, 51,376 horses, 134,897 milch cows, 102,143 oxen and other cattle, 46,759 sheep, and 55,598 hogs.

Pisciculture is receiving much attention, commissioners having stocked the ponds and rivers. Black bass, trout and shad have been successfully cultivated.

CONNELLSVILLE, a mining and manufacturing town of Fayette county, Penn., is situated on the Youghiogheny river, fifty-seven miles southeast of Pittsburgh, at the junction of several railroads. The principal industry is the manufacture of coke, and there are large coal mines close to the town. Conneltsville contains two banks, a paper mill, a pottery and a population (1890) of 5,623.

CONNEMARA, a wild and picturesque district in the west of Galway, Ireland, indented by numerous bays from the Atlantic, whence it derives its name. It is a great resort of travelers.

CONNERSVILLE, the county seat of Fayette county, Ind., is situated on the Whitewater river, sixty miles northwest of Cincinnati. It contains two banks, two newspaper offices, a court house, several hotels, churches and schools and is lighted by gas. The manufactures include cigars, woolens, furniture, flour and machinery. Population (1890), 6,000.

CONNOISSEUR, a term borrowed from the French to designate persons who, without being themselves artists, are competent to pass a critical judgment upon the merits of works of art, especially in painting and sculpture. The Italian equivalent for connoisseurs is *Cognoscenti*.

CONODONTS, minute fossils not met with in Palæozoic strata. They are variable in form, and look very like the teeth of different kinds of fishes, some being simple slender-pointed sharp-edged cones, while others are more complex, resembling in form the teeth of certain sharks. Their affinities are very uncertain—some maintaining that they are really the minute teeth of fishes allied to the living hag-fishes and lampreys—others suggesting that they have more analogy with the hooklets or denticles of annelids and molluscs.

CONOLLY, JOHN (1794-1867), physician, studied medicine at Edinburgh, where he took the degree of M. D. in 1821. He settled in practice at Chichester, whence he removed to Stratford-on-Avon. In 1827 he was appointed, when only thirty-three years of age, professor of practice of physic in University College, London. This chair he resigned after holding it four years. Subsequently he practiced medicine in Warwick until 1839, in which year he was elected resident physician to the Middlesex County Asylum at Hanwell. It was in this capacity that Conolly made his name famous by carrying out in its entirety and on a large scale the principle of non-restraint in the treatment of the insane. Dr. Conolly was granted the degree of D. C. L. by the University of Oxford in 1851, in acknowledgment of these services. He died in 1867.

CONOID, a solid formed by the revolution of a conic section round its axis.

CONNOR, BERNARD (1666-1698), physician, was born in Kerry, Ireland. He studied medicine at Montpellier, and afterwards at Paris. Having traveled through Italy with the two sons of the high chancellor of Poland, he was introduced at the court of Warsaw, and appointed physician to John Sobieski, king of Poland. In 1695 he visited England, and read a course of lectures on physiology in London and Oxford. He was afterwards elected member of the Royal Society and College of Physicians, and was invited to Cambridge, where he also delivered public lectures. He was the author of a treatise called *Evangelium Medici* (the Physician's Gospel), in which he endeavored to explain the Christian miracles as due to natural causes. He also wrote a *History of Poland* in 2 vols.

CONON, an Athenian general. Having already commanded on several occasions, he was chosen as one of the ten generals who superseded Alcibiades in 406 B. C. He was not present at the battle of Arginusæ, and consequently he was allowed to remain in command. In 405, however, the Athenian fleet was surprised by Lysander, at Ægospotami, and Conon fled to his friend, Evagoras, king of Cyprus. On the outbreak of the war between Sparta and the Persians, he obtained from King Artaxerxes joint command with Pharnabazus of a Persian fleet. With it in 394 B. C. he defeated the Lacedæmonians near Cnidos, and thus deprived them of the empire of the sea, which they had held since the taking of Athens. Sailing down the Ægean to Athens, he expelled the Lacedæmonian harlots from most of

the maritime towns, and finally completed his services to his country by restoring the long walls and fortifications of the Piræus.

CONRAD. For the four emperors of this name, see **GERMANY**.

CONRADIN (1252-1268), son of the Emperor Conrad IV. and Elizabeth of Bavaria, was at the death of his father an infant some two years old. His uncle, Manfred, the illegitimate son of Frederick II., declared himself his champion, but, having recovered the Two Sicilies, himself seized the throne. Innocent IV. now called in the aid of Charles of Anjou, who defeated Manfred, and took possession of the crown. But Charles showed favor to none but his own countrymen, and at the entreaty of the Ghibelline leaders, by whom he was acknowledged as emperor, Conradin, now only sixteen, led an army into Italy. After gaining some advantages he was utterly defeated in August, 1268, and soon after, being betrayed into the hands of Charles, he was unjustly tried, condemned, and executed in the market-place of Naples, with the consent of the Pope. He left his kingdom by will to Peter of Aragon. See **SICILY**.

CONRART, or **CONRARD**, **VALENTIN**, one of the founders of the French Academy, was born at Paris in 1603, and was educated, under Calvinist parents, for a commercial life. After his father's death, however, he turned his attention to literature, made himself proficient in his own language, and in those of Italy and Spain, and being brought into contact with men of letters, soon acquired a reputation, which for many years he did nothing to support. He was made counselor and secretary to the king; and this, together with a benevolent character, a faultless taste, and a certain charm of disposition and conversation, gained him a host of friends in the highest circles. Some, however, refused to join in the applause that everywhere greeted Conrart, and posterity has echoed their verdict. His literary reputation has passed away almost as completely as that of his friend Chapelain; and a certain distinction of style, recognized by Sainte-Beuve, is all that he is now credited with. In 1629 Conrart's house became the resort of a knot of literary men, who met to talk over professional subjects, and to read for advice and approval such work as they produced. The indiscretion of one of the number led to an involuntary notoriety, and to the influx into the meetings of the club of many strangers. Among these was Boisrobert, Richelieu's newsmonger and jester, who reported to his patron what he had seen and heard. The cardinal offered the society his protection, and in this way (1634) the French academy was created. Conrart was unanimously elected secretary, and discharged the duties of his post for forty-one years, till his death in 1675. The intelligence and conscientiousness he displayed in this capacity are perhaps his greatest titles to distinction. To the last he rigidly adhered to his hereditary faith. See **ACADEMY**.

CONSALVI, or **GONSALVI**, **ERCOLE**, cardinal and statesman, was born at Rome on the 8th of June, 1757, of a noble family originally belonging to Pisa. His boyhood was sickly, and presents nothing remarkable. From the college of Urbino, he passed to the Frascati College and the religious academy at Rome, studying theology, politics, music and literature. Entering the Pontifical court as page in 1783, he rapidly advanced, and in 1797 obtained the office of auditor of the rota, which brought him into public notice. Accused of participation in the assassination of Duphot, he was arrested by the French on their seizure of Rome, and after a period of incarceration condemned, like so many of his brethren, to exile. On the death of Pius VI. he suc-

ceeded, in conjunction with Cardinal Maury, in securing in the conclave at Venice the election of Chiaramonti as Pius VII.; and the new Pope rewarded his devotion by appointing him secretary of state. Though from the beginning an avowed antagonist of the principles of the Revolution, Consalvi was too wise not to know that even Rome required in some degree to acknowledge their influence. He accordingly instituted various reforms, and but for the bitter opposition of the Conservative party his measures would have been more thoroughgoing than they were. He permitted laymen to hold certain public offices, under surveillance of the prelates, organized a guard from among the Roman nobility, decreed a plan for redeeming the base coinage, permitted the communes a certain degree of municipal liberty, and promised the liquidation of the public debt. In the long debates between Rome and France about the Concordat, Consalvi was the leading power on the side of the church; and he fought for the Papal privileges during his visit to Paris, with a pertinacity and spirit that won at once the hatred and respect of Napoleon. Impressed with Napoleon's power, and anxious, if possible, to make him subservient to the designs of Rome, he strongly urged the Pope to accede to the conqueror's request that the imperial crown should be placed on his head by the most sacred hands in Christendom. During the Pope's absence on this mission he remained as virtual sovereign in Rome; and his regency was rendered remarkable by a great inundation, caused by the overflow of the Tiber, during which he exposed himself with heroic humanity for the preservation of the sufferers. Not long after the return of the Pope, the amity between the Vatican and the Tuileries was again broken. Rome was full of anti Revolutionary and anti-Napoleonic strangers from all parts of Europe. The emperor was irritated; and his ambassador, Cardinal Fesch, kept up the irritation by perpetual complaints directed more especially against Consalvi himself. Consalvi did accordingly resign on the 17th June, 1807, and was followed in rapid succession by Casoni, Doria, Gabrielli, and Pacca. When in 1808 Miollis entered Rome, and the temporal power of the Pope was formally abolished, he broke off all relations with the French, though several of them were his intimate friends. In 1809 he was at Paris, and, in a remarkable interview, of which he has left a graphic account in his memoirs, he received from Napoleon's own lips what was practically an apology for the treatment he had received. With unbending dignity, however, he retained his antagonism; and shortly afterward he was one of the thirteen cardinals who refused to recognize the marriage of Marie Louise. The result, as is well known, was a confinement at Rheims which only terminated about three years afterward, when Napoleon had extorted what terms he pleased from the half-captive Pope at Fontainebleau. On his release Consalvi hastened to his master's assistance; and he was soon after permitted to resume his functions under the restored pontificate at Rome. Dispatched to England to meet the allied sovereigns, he was well received both by king and people; and at the Congress of Vienna he obtained the restitution of the Marches (Ancona, Treviso, and Fermo) and the Legations (Bologna, Ferrara, and Ravenna). The rest of his life was spent in the work of reorganizing the States of the Church, and bringing back the allegiance of Europe to the Papal throne. He was practically governor of Rome; and Pius was so much under his control that "Pasquin" said the Pope would have to wait at the gates of paradise till the cardinal came from purgatory with the keys. On the death of Pius VII. he retired to his villa of Porte d'Anzio; and, though he afterward accepted from the

new Pope the honorary office of prefect of the college *De Propaganda Fide*, his political career was closed. He died on the 22d of January, 1824, leaving most of his moderate fortune to the poor.

CONSANGUINITY, or KINDRED, is defined by the writers on the subject to be the connection or relation of persons descended from the same stock or common ancestor. This consanguinity is either lineal or collateral. Lineal consanguinity is that which subsists between persons of whom one is descended in a direct line from the other, while collateral relations descend from the same stock or ancestor, but do not descend the one from the other. Collateral kinsmen, then, are such as lineally spring from one and the same ancestor, who is the *stirps*, or root, as well as the *stipes*, trunk, or common stock, whence these relations branch out.

CONSCRIPTION. See ARMY.

CONSECRATION, the act of devoting anything to sacred uses. The Mosaic law ordained that all the first-born both of man and beast should be consecrated to God. In England (and, indeed, in all countries where any form of episcopacy prevails) churches have always been consecrated with particular ceremonies, the form of which is either left in a great measure to the discretion of the bishops, or provided for in the recognized office-books. Cemeteries are in like manner episcopally consecrated. Consecration is also used for the benediction of the elements in the Eucharist.

CONSERVATORY, a name applied first in Italy, and afterwards throughout the continent, to institutions for training in music and for preserving the true theory and practice of art. They arose out of the necessity of providing trained choristers for the service of the church, and were generally maintained upon some charitable foundation which provided board in addition to a musical education for orphans and the children of poor parents, other pupils being occasionally taken on payment of fees. When fully equipped, each conservatorio had two *maestri* or principals, one for composition and one for singing, besides professors for the various instruments. Though St. Ambrose and Pope Leo I., in the fourth and fifth centuries respectively, are sometimes named in connection with the subject, the historic continuity of the conservatoire in its modern sense cannot be traced farther back than the sixteenth century. The first to which a definite date can be assigned is the Conservatorio di Santa Maria di Loretto, at Naples, founded by Giovanni di Tappia in 1537. Three other similar schools were afterward established in the city, of which the Conservatorio di Sant' Onofrio deserves special mention on account of the fame of its teachers, such as Alessandro Scarlatti, Leo, Durante, and Porpora. There were thus for a considerable time four flourishing conservatorios in Naples. Two of them, however, ceased to exist in the course of last century, and on the French occupation of the city the other two were united by Murat in a new institution under the title Real Collegio di Musica, which admitted pupils of both sexes, the earlier conservatorios having been exclusively for boys. In Venice, on the other hand, there were from an early date four conservatorios conducted on a similar plan to those in Naples, but exclusively for girls. These died out with the decay of the Venetian republic, and the center of musical instruction for northern Italy was transferred to Milan, where a conservatorio on a large scale was established by Prince Eugene Beauharnais in 1808. The celebrated conservatoire of Paris owes its origin to the Ecole Royale de Chant et de Declamation, founded by Baron de Breteuil in 1784, for the purpose of training singers for the opera. Suspended during the stormy period of the

revolution, its place was taken by the Conservatoire de Musique, established in 1795 on the basis of a school for gratuitous instruction in military music, founded by the mayor of Paris in 1792. The plan and scale on which it was founded had to be modified more than once in succeeding years, but it continued to flourish, and in the interval between 1820 and 1840, under the direction of Cherubini, may be said to have led the van of musical progress in Europe. In more recent years that place of honor belongs decidedly to the conservatorium at Leipsic, founded by Mendelssohn in 1842.

CONSERVATORY, in Horticulture, a house for the cultivation of tender plants, which, although requiring protection from frosts, and a little assistance of artificial heat, do not need the heat of the hot-house or stove.

CONSERVES are described by Cooley in his *Cyclopædia of Practical Receipts*, to be "recent vegetable matter, herbs, roots, fruit, and seed, beaten with powdered sugar to the consistence of a stiff paste, so as to preserve them as nearly as possible in their natural freshness." They are made by druggists as vehicles for more active medicines, and by confectioners as sweetmeats.

CONSHOHOCKEN, a town of Montgomery county, Penn., on the Schuylkill river, three miles from Norristown. It is at the junction of several railroads, and is a place of considerable trade. Population (1890), 5,469.

CONSISTORY, a term applied originally to an antechamber or outer-room of the palace of the emperors of Rome, where the petitioners for justice assembled and awaited the presence of the emperor, who upon his entrance into the consistory took his seat upon a tribunal, while the others stood around him (*consistebant*). The word "consistory," as a term of ecclesiastical law, in which sense it is for the most part employed in modern times, came to be used first of all to denote certain ecclesiastical councils, in which the bishop was seated, while the presbyters and other clergy stood around him. It came by degrees to be used generally for all ecclesiastical councils in which a bishop presided.

There are two kinds of consistory which the Pope is in the habit of convoking -- a public consistory and a private consistory. A public consistory is now rarely summoned; it is, in fact, an extraordinary assembly of the cardinals, at which other prelates and ecclesiastical magnates are present, and over which the Pope presides in his pontifical robes of state. It was usual for the Pope to receive foreign sovereigns and their ambassadors in a public consistory, and the hat used to be conferred on newly-created cardinals in such a consistory. The private or secret consistory is the ordinary court in which the cardinals attend on the Pope, and in which the Pope formally transacts certain ecclesiastical matters, which are of high importance and are termed consistorial matters; for instance, his Holiness nominates in secret consistory to all consistorial benefices, creates cardinals, appoints to vacant bishoprics, confirms the election of bishops, deposes bishops, decrees the pallium to be sent to archbishops, unites churches, grants extraordinary dispensations, &c.

CONSOLIDATION ACTS. The practice of legislating for small portions of a subject only at a time, which is characteristic of the English Parliament, produces as a necessary consequence great confusion in the statute law. The Acts relating to any subject of importance or difficulty will be found to be scattered over many years, and through the operation of clauses partially repealing or amending former Acts, the final sense of the Legislature becomes enveloped in unintelligible or contradictory expressions. Where opportunity offers, the law thus expressed in any statute is sometimes recast in a single statute, called a Consolida-

tion Act. Among such are the Criminal Laws Consolidation Act and the Customs Laws Consolidation Act.

CONSOLS, an abbreviation of *Consolidated Annuities*, had their origin in 1751, and now form the larger portion of the funded debt of Great Britain. In the progress of the national debt it was deemed expedient, on grounds which have been much questioned, instead of borrowing at various rates of interest, according to the state of the market or the need and credit of the Government, to offer a fixed rate of interest, usually 3 or 3½ per cent., and as the market required to give the lenders an advantage in the principal funded. Thus subscribers of £100 would sometimes receive £150 of 3 per cent. stock. In 1815, at the close of the French wars, a large loan was raised at as much as £174 3 per cent. and £10 4 per cent. stock for £100. The low rate of interest was thus purely nominal, while the principal of the debt was increased beyond all due proportion. This practice began in the reign of George II., when some portions of the debt on which the interest had been successfully reduced were consolidated into 3 per cent. annuities, and consols, as the annuities were called, and other stocks of nominally low interest, rapidly increased under the same practice during the great wars. In times of peace, when the rate of money has enabled portions of the debt at a higher interest to be commuted into stock of lower interest, it has usually been into consols that the conversion has been effected. Temporary deficits of the revenue have been covered by an issue of consols; exchequer bills when founded have taken the same form, though not constantly or exclusively; and some loans of the Government in recent times for special purposes, such as the relief of the Irish famine and the expenditure in the Crimean war, have been wholly or partly raised in consols.

CONSPIRACY, in English law, is an agreement between two or more persons to do certain wrongful acts, which may not, however, be punishable when committed by a single person, not acting in concert with others. The following are enumerated in text-books as the things, an agreement to do which, made between several persons, constitutes the offence of conspiracy:—(1) Falsely to charge another with a crime punishable by law, either from a malicious or vindictive motive or feeling toward the party, or for the purpose of extorting money from him; (2) wrongfully to injure or prejudice a third person or any body of men in any other manner; (3) to commit any offence punishable by law; (4) to do any act with intent to pervert the course of justice; (5) to effect a legal purpose with a corrupt intent or by improper means; to which are added (6) conspiracies or combinations among workmen to raise wages.

Conspiracy at common law is a misdemeanor, and the punishment is fine or imprisonment, or both, to which may be added hard labor in the case of any conspiracy to cheat and defraud, or to extort money or goods, or falsely to accuse of any crime, and to obstruct, pervert, prevent, or defeat the cause of justice. Conspiracy to murder is punishable by penal servitude.

CONSTABLE, an ancient officer of the peace. The name, as well as the office, are, according to Blackstone, borrowed from the French. In the Middle Ages there was a great officer of this name, whose duties related to matters of chivalry. "The office of Lord High Constable," says Blackstone, "hath been disused in England, except only upon great and solemn occasions—as the king's coronation and the like—ever since the attainder of Stafford, duke of Buckingham, under King Henry VIII., as in France it was suppressed about a century after by an edict of Louis XIII., but from that office, says Lambard, this lower constablenesship

was first drawn, and is, as it were, a very finger of that hand. A constable, in the United States is a petty officer, usually elected by the suffrages of a municipal township, whose duty it is to summon the witnesses and serve the processes of a Justice's court. He is paid by fees assessed in the costs of the case, and his precise functions are prescribed by statute in the different States. As the officer employed in ejectments he is popularly held in disfavor.

CONSTABLE, ARCHIBALD, the well-known Edinburgh publisher, was born in the parish of Carnbee, Fifeshire, on February 24, 1774. Having been educated at the parish school, he was, at his own request, apprenticed to a bookseller in Edinburgh, named Peter Hill. When not yet twenty-one years of age he had married and commenced business on his own account. He took special interest in Scottish literature. In 1801 he became proprietor of the *Farmers' Magazine* and the *Scots' Magazine*, and on October 10, 1802, he published the first number of the *Edinburgh Review*. Constable was for many years on the most intimate and friendly relations with Sir Walter Scott. In January, 1802, he had a share in the publication of the *Minstrelsy of the Scottish Border*, and afterwards published a large proportion of Scott's poems and novels. Besides these, he published the *Annual Register*, and the works of Dugald Stewart, Brown, Playfair and Leslie. In 1812, he purchased the copyright of the *Encyclopædia Britannica*, to which he added the supplement to the 4th, 5th, and 6th editions (1815–1824), extending to six volumes, and containing the celebrated dissertations by Stewart, Playfair, and Brande. Not the least important of his undertakings was *Constable's Miscellany*, projected in 1825, consisting of a series of original works, and standard works republished in a cheap form, the earliest and one of the most famous of the attempts to popularize wholesome literature. In 1826 pecuniary difficulties in which the firm of Constable and Co. became involved (its liabilities exceeding £250,000) obliged it to stop payment. From this time Constable's health gave way, and he died on 21st July, 1827, having, by his generous dealings with authors, his literary enthusiasm, and his efforts to promote the diffusion of standard literature, gained for himself one of the most distinguished names among British publishers.

CONSTABLE, HENRY, one of the most considerable of the Elizabethan sonneteers, was born about 1556, in Yorkshire, as it is supposed, and certainly of a Roman Catholic family. He died in 1614.

CONSTABLE, JOHN, landscape painter, was born at East Bergholt, in the Stour valley, Suffolk, June 11, 1776. His father, who was a yeoman farmer, did not care to encourage his tendency towards art, and set him to work in one of his windmills. In 1795 he was sent to London with a letter to Farington, the landscape painter. His progress, however, was not encouraging; and in 1797 he returned home. In 1799 he again went to London to perfect himself as a painter; and on the 4th of February he was admitted a student of the Royal Academy. He exhibited a number of paintings during the next eight years, but it was not until 1811 that he gave to the world his *Dedham Vale*. In 1818 he exhibited four of his finest works; and next year he sent to Somerset House the largest picture he had yet painted, the landscape known as Constable's *White Horse*. In 1823, however, after the exhibition of such masterpieces as the *Stratford Mill*, the *Hay Cart*, and the *Salisbury Cathedral*, he did not disdain to copy two Claudes. In 1825, he painted his *Lock* and sent his *White Horse* to Lille for exhibition. He died suddenly, on the 1st of April, 1837.

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